

# AMERICAN BEE JOURNAL

*The Oldest Bee Journal in the English Language*

ESTABLISHED BY SAMUEL WAGNER IN 1861

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**American Bee Journal . . . . . Hamilton, Illinois**

# Pollen Substitutes and How to Use Them\*

By Mykola H. Haydak,

Division of Entomology and Economic Zoology,  
University Farm, St. Paul, Minnesota.

**I**N the evaluation of a pollen substitute the following facts must be ascertained:

1. The influence of any given foodstuff on the development of young bees. It is a known fact that young bees need to consume pollen in order to become normal workers capable of performing all the duties both in and outside the hive.

2. The influence of food on the brood rearing. Only those foods which cause a normal brood rearing activity can be used as pollen substitutes.

3. The influence on the health of bees. Those foods which cause a great mortality of bees cannot be recommended as a pollen substitute.

In my experiments young bees which have never eaten pollen were used. Colonies consisting of 5000-7000 of such bees were kept in confinement, fed various food materials and the above mentioned facts were ascertained. The following foods were tried: powdered dried yeast, fresh whole milk, skim milk powder, egg white, egg yolk, whole egg, rye flour, meat scrap, ground dried blood, digested tankage, fish meal, whole wheat flour, whole oats flour, corn flour, pea flour, cottonseed meal, commercial casein, soybean flour, soybean meal, peanut meal, linseed meal; mixtures of cottonseed meal, soybean meal and linseed meal with powdered skim milk (20% of the latter by weight).

Only those colonies which were

given dried yeast, fresh whole milk, skim milk powder, egg white, egg yolk, whole egg, meat scrap, cottonseed meal, soybean flour, and the mixtures of cottonseed meal or soybean meal with skim milk powder reared brood.

If we consider only those pollen substitutes which are easily available and cheap, then we have to select fresh skim milk, soybean flour, and cottonseed meal. It is better to mix the last two dry pollen substitutes with one-fifth of skim milk powder by weight.

Presently we are trying these pollen substitutes under field conditions in the apiary. The recommendations that I am giving now are not final; they just give a general idea as to how to use pollen substitutes.

Dry pollen substitutes such as soybean flour, cottonseed meal, alone or mixed with skim milk powder (4 parts of pollen substitute with one part of skim milk powder by weight) and soybean meal mixed with skim milk powder in the same proportion can be given outside, placing them in shallow trays and allowing the bees to collect the powder. Of course, this can be done only when the weather is warm enough for bees to fly. For giving in the hive, a mixture of two parts of commercial invert with one part of dry pollen substitute (measured by volume) can be used. It is advisable to add to a commercial invert syrup one-tenth of glycerine by volume. This will prevent the drying of the mixture, which can be distributed to the cells of a comb by means of a blunt knife. We are trying to give these mixtures in ordinary paper dishes (the kind that you can buy in

any ten cent store) which are placed above the frames. Naturally the food has to be covered with paper, leaving a small uncovered place in order to give bees a direct access to the food. We also prepare a pollen substitute candy. Two parts of powdered sugar are thoroughly mixed with one part of pollen substitute (by weight). Then candy is made, using commercial invert syrup (the latter may be provided from any confectionary and bakery supply company). The candy will harden in a day or two. It is necessary to make the candy soft, then let it stand for a day or two, crush it and make candy again adding as much commercial invert syrup as desired. Such candy is placed over the top bars of a hive.

I think that fresh skim milk can be used instead of whole milk for pollen substitute. Fill one third of a container with sugar, then add skim milk, leaving about half an inch space on the top, and then mix well. Such a mixture can be given to bees in regular feeders. It is better to start with smaller amounts in order to ascertain how eagerly the bees take the solution. The food should be exchanged every other day.

I would like to add a plea to every beekeeper who will try to give some pollen substitutes to his bees. Please note the influence of a pollen substitute on the brood rearing activity, strength of the colony, honey production. In case you use a dry pollen substitute, allowing the bees to collect it like pollen, please note whether it hardens in the cells or not, whether bees carry clumps of the pollen substitute out of the hive. Write your experiences either directly to me, or publish them in any bee journal.

\*Paper No. 357 of the Miscellaneous Journal Series of the Minnesota Agricultural Experiment Station.

Completion of this phase of the project was made possible by workers supplied on Project No. 1985, Minnesota Works Progress Administration, Sponsor: University of Minnesota.



# Let's Go to Washington

By George J. Abrams, Secretary,  
American Honey Producers' League.

**FLASH**—Dr. E. F. Phillips, world traveler in the interests of bee culture, prolific writer and author of the famous textbook, "Beekeeping," has been engaged to deliver a special address on the Tuesday evening of the International Beekeepers' Congress which will be held this year in Washington, D. C., on October 25, 26, and 27.

**B**EES on a hotel roof? Of course. And why not? Even if they did fly a hundred and fifty yards away across the street and over the roof of the U. S. Treasury into the Good Neighbor's back yard, they would hardly prove a nuisance, because, look where you will, you will find neither clothes line nor pump at Number One, Executive Avenue. And besides, Mr. and Mrs. Roosevelt are beekeepers themselves, although their apiary is located at Hyde Park and not at the White House.

We agree, however, that as a general rule a hotel roof is not the best location for an apiary, but the terrace on the roof of the Hotel Washington, official headquarters hotel for the 1937 International Beekeepers' Congress is possibly an exception, and we believe would prove an excellent place to establish an apiary. And here are the reasons why.

In the first place, just across the street (historic Pennsylvania Avenue) begins a public park system of enormous proportions. This is known as Potomac Park. The park comprises, literally, square miles of clover growing lawns and linear miles of drives lined with nectar secreting trees. Bee flight, then, to the south of the hotel would provide splendid pasturage.

Here in Potomac Park the Washington Monument rises in towering simplicity and looks down scarcely a mile away to that modern Grecian classic the Lincoln Memorial. The presence of these two majestic memorials, among the clovers and nectar secreting trees of Potomac Park, is to the beekeeper nothing short of symbolical, because George Washington was something of an apiculturist himself, maintaining an apiary at Mt. Vernon, several miles below Washington on the Potomac, and because many of Abraham Lincoln's pet anecdotes and many of his more familiar humorous sayings refer to bees.

Now—bee flight to the north of our imaginary hotel apiary, through the shallow canyons forming Wash-

ington's business district (buildings are limited by law to only ten stories) into the downtown residential section would be rewarded by splendid surplus flows, particularly from tulip poplar and linden. These trees line many miles of Washington's avenues. Washington has been called, among other things, the City of Trees, and it is interesting to the beekeeper that a high percentage of these trees are ones of economic importance from the standpoint of honey production. So—there would be no lack of honey plants for our hotel apiary.

And there should be no danger of over-stocking the area. Mr. Roosevelt's apiary was not moved to Washington when he settled here March 4, 1933. Possibly Mrs. Roosevelt was not planning on staying home much of the time, and it was figured that too many swarms would get away in her absence. Or possibly, for Mr. Roosevelt the swarmings in the anteroom were enough for him. There is, however, one beekeeper in southeast Washington who does take advantage of the Potomac Park honeyflow, but why he does not label his product "Potomac Park Honey" and sell it at \$1.00 a pound to the hordes of Cherry Blossom visitors, we do not know. It could be done. Another beekeeper, a Marylander, who would be our only competitor for the northern end of the range, moves bees into the city proper to take advantage of the splendid basswood flow which is available each year from the thousands of lindens lining Massachusetts Avenue. Here, here—enough of this. What bout the plans for this year's International Beekeepers' Congress?

The Congress, at which will be represented the American Honey Producers' League, The American Honey Institute, The Apiary Inspectors of America, The Shippers of Package Bees and Queens, The Southern Conference, and at least the Maryland, Delaware and Virginia State Associations, will meet in Washington, D. C., on October 25, 26 and 27. The Hotel Washington will be the

headquarters hotel. Its facilities for handling conventions are enormous.

The general session and business meetings will be held in the spacious and handsome Hall of Nations. Here too, closing the three-day convention and ending everything with a grand finale will be held the banquet. This banquet alone should be sufficient reason to come to Washington. You have seen stuffed shirts aplenty, but the shirts who will grace the speaker's table this night, if our plans materialize, will be stuffed with brains and the ability to talk only five minutes and say something, and will carry labels that are household words (and we're not referring to trade names of shirt manufacturers either).

Special parlors have been assigned to the several organizations making up the congress for their use for any extra business sessions they may wish to hold.

Unsurpassed space for booths and tables for commercial exhibits are available. Because of the volume of advertising which naturally will be forthcoming from the first visit of the Congress to the Nation's Capital, it is believed that the commercial displays will far surpass anything ever attempted at previous meetings. It is hoped that every industry allied directly or indirectly with the honey business will be represented.

The choice of hotel, also from the standpoint of location, is a happy one as it is situated on the corner of Pennsylvania Avenue and Fifteenth Street, N. W. (the most historic corner in town), around which in grand review swung the Boys in Blue, kids home from the Philippines and Dough Boys. There is a legend about this corner. It is said that if you will go over to the Treasury side of the street at the height of the mid-day clamor of traffic, stand close to the granite walls, close your eyes and "tune in," you can hear the blare of long-forgotten bands swinging down "the Avenue." This corner is probably the most photographed parade ground in the world. Brady "shot" the Grand Army turning it and legions of photo-

graphers since have carried out the work of recording, from this point of vantage, the return of our Nation's heroes.

In the heart of the business and theatre district, across the street from the famed Federal Triangle, so close to the Executive Mansion that a silver dollar could easily be hurled

from the roof into the White House grounds, the Hotel location is unbeatable.

And we almost forgot—John Nance Garner lives in this hotel when in Washington looking after the Senate. "Texas Jack," as every Southern bee-keeper knows, is himself a beekeeper who maintains over two hundred

colonies at his home in Uvalde. So having that apiary on the roof might not be a bad idea after all. It would at least give our beekeeping Vice-President a little relaxation from the cares of State. Can you picture him stepping from his palatial suite, smoker and hive tool in hand, bee veil in place, and directing the elevator boy with the one word—"Roof."

ABJ



## Butterfat in "Honey Bars"

By P. H. Tracy,  
Department of Dairy Husbandry,  
University of Illinois.

(From "The Milk Dealer," April 1, 1934)

**A**n extremely palatable and nutritious confection has been developed at the University of Illinois that has proved to be a popular seller among the college students during the winter months. This product, called a "Honey Bar," is made from a high test sweet cream, strained honey, with either grapenuts or fruits added in generous portions and is chocolate coated.

A cream testing 75-80 per cent fat should be used. A cream of this test can be secured by separating milk at the pasteurizing temperature using a separator equipped with special tinware for handling heavy cream. With the larger separators it may be possible to separate a cream of high enough test without the special tinware provided the screw adjustment is set for high test, and if the rate of inflow of the hot milk into the bowl is reduced from a third to a fourth. As shown in a previous investigation\* the fat loss in the skim milk from a high test cream separated from hot milk is negligible.

There are many types of honeys available but the light colored and mild flavored ones, such as sweet clover, are to be preferred. Heat the honey to 155 degrees F. momentarily to destroy any enzymes that may be

present. Unless destroyed, the enzymes will cause a hydrolysis of the butterfat producing rancidity. The honey can be cooled to 125-130 degrees F. before mixing with the cream.

While the heavy cream is still warm mix it with the warm honey in the proportion of three pounds of honey and seven pounds of cream. Place in 20-quart cream setting cans.

To prevent the added grapenuts or fruits from absorbing moisture the cans containing the honey cream mixture should be placed in ice water for about an hour. This stiffens the honey cream and prevents the added flavoring material from being tough in the finished product. The honey cream should not be permitted to solidify or become too firm before the flavoring materials are added, as the agitation necessary to make a homogenous mixture will churn the butterfat.

The purpose of adding the flavoring materials is to add variety and to reduce the richness of the high fat and honey mixture. Pineapple fruit in the form of small wedges or shreds has proved popular. The fruit should be colored red or green and may be flavored with mint. Cherries may also be used.

Peanuts are successful if extreme care is taken to prevent them from getting tough. Probably the most popular honey bar is the one contain-

ing grapenuts. The crunchy sensation of the grapenuts that results when biting into the bar, together with their nutlike taste and their relative cheapness makes them a desirable blend in the mixture of honey and cream.

The proportions of flavoring found satisfactory are 3.5 pounds of fruit per 25 pounds of honey and cream mixture and 1.75 pounds of grapenuts per 25 pounds of honey and cream mixture.

After the flavoring material has been added to the honey cream the mixture is poured into ice cream brick pans for solidifying. Pans made with partitions for use in the manufacture of chocolate coated ice cream are to be recommended. The pans used in our laboratory make slabs approximately 1 1/8 inches wide, 3 1/4 inches deep and 26 inches long. The pans are placed in a hardening room for at least 10 hours after which the slabs are removed, placed on pan lids that are covered with parchment paper and returned to the hardening room until ready to be cut.

The consistency of the chilled slab is such that the knife used to cut it must be heated. This can be accomplished by dipping the knife occasionally in hot water. The slab is cut into pieces 1/2 inch thick. This makes a bar 3-3/16 inches long, 1 1/4 inches wide and 1/2 inch thick.

\*Bulletin 387, University of Ill. Agr. Exp. Sta. "How to Make Honey Cream," by P. H. Tracy.

An ice cream bar coating machine may be used for dipping the bars or the dipping may be done by hand. The coating chocolate should have a temperature of about 110 degrees F.

About 1,160 bars will be secured from 100 pounds of the slabs. Approximately 25 pounds of coating will be needed for each 100 pounds of slabs. To make the 1,160 bars will require, therefore, the following materials:

70 pounds 75-80 per cent cream (or the cream from 1300 - 1400 pounds of four per cent milk)  
30 pounds strained honey  
25 pounds chocolate coating  
7 pounds grapenuts or 14 pounds of fruit

The material cost per bar would average about 2.3 cents at present prices assuming the milk to cost \$1.40 per hundred pounds.

Honey bars being a highly concentrated mixture composed primarily of butterfat and sugars, should be considered a confection rather than an ice cream. The portions should be small so as not to cause the purchaser

to tire of the product before it has been entirely consumed. Honey bars are apt to prove most popular among students and office workers who desire a palatable, nourishing, and healthful food that can be quickly and conveniently consumed.

#### Conclusions.

A new product, made from a mixture of high test cream (75 to 80 per cent) and honey, flavored with grapenuts or fruit, and coated with chocolate is here described. The product, called a "honey bar," can be made at a cost of two to three cents each. Honey bars are a rich but palatable confection and have proved particularly popular among students and office workers.

**EDITOR'S NOTE**—In considering the manufacture of the Honey Bar it might be well to keep in mind the fact that a claim has been advanced by the Cracker Jack Co. of Chicago, the Brown Paper Bag Co. of Chicago, and the Robert A. Johnston Co. of Milwaukee that the bar is an infringement of the Hassel Patent No. 1,901,394, under which patent these firms are licensees. The Hassel Patent bar is an ice cream bar containing either candy or candied popcorn in its core and candied popcorn or other farinaceous material in its coating.

ABJ

## Institute Members

AS you know, the actual handling of Institute finances is now in the hands of Miss Willah Goodman, the financial secretary. But the Chairman of the Finance Committee still has a responsibility in helping to maintain active support of the Institute. I am quite sure that the beekeepers who have been supporting the Institute are convinced of its value, and will be willing to continue their support in maintaining a national publicity campaign for honey. If you are reading the magazines, you have noticed that there are more stories about bees and honey in recent issues than at any other time. Practically all of the material for these articles is furnished by American Honey Institute.

With the help of beekeepers we have practically eliminated emergency calls for funds, but it is necessary that a drive for Institute members be made sometime during the year, to provide a continuous income to keep the Institute going. Last year we began our efforts in June, building a surplus on which a budget could be based in January.

Support from beekeepers has been remarkably good, and if support is maintained as well in the future as was the case during the bad years of the drought, the Institute should be able to produce even a better program and create more publicity, with an increasing demand for honey.

We hope, therefore, that all bee-

keepers will join with the finance committee in an effort to increase the number of members for the Institute and also to increase support on a basis of \$1 per ton for the entire honey crop. A subscription of \$1 for every \$100 of sales is the membership basis suggested for queen breeders and package bee shippers.

A really important development of the past year which shows a definite possibility in creating a large consumption of honey in the average city home, is the new type of dispenser known as the "Drip-cut Dispenser." We continually run across families using honey who previously did not serve it, because of the difficulty of serving it at the table, and the necessity of keeping the honey pitcher in a saucer. There is no longer any need for this practice, and with its elimination, the use of honey becomes increasingly popular. Associations and local groups should secure these dispensers for sale in their communities.

ABJ

### The Busy Bee

In crimsoned clover's fairy cup  
The nectar sweet the bee will sup;  
And then with humming happy tune  
Bring home its favor to the Queen.  
So all its days the busy bee  
Fans from the air its minstrelsy.  
Night's drowsy murmur fills the hours  
But daytime its wings sing to the  
—Florence Snyder. flowers.

## Grasshopper Baits and Bees

The killing of bees by poisons applied as sprays or dusts has attracted such wide attention among beekeepers that the question has been raised as to the possibility of poisoning bees by sweetened grasshopper baits. The grasshopper outbreak through the middle west has necessitated the application of many tons of such poisoned bait. At least a part of this bait has contained blackstrap molasses as an attractive sweetening agent.

The possibility of poisoning bees by bran bait designed for cutworms or grasshoppers is mentioned in the American Bee Journal for July and August 1927, pages 359 and 439, and for June 1935, page 279. In July 1936 experiments were conducted at the University of Illinois, Urbana, to test the attractiveness to bees of baits recommended for control of grasshoppers. In the University apiary areas were baited at the rate of 10 pounds per acre (dry basis) with freshly prepared baits. The scattered bait was on the ground by 4 A. M. No bees had left their hives by this hour. Typical baits tested contained either sodium arsenite or Paris green as the poison. A part contained two gallons of blackstrap molasses per 100 pounds of dry bait, and some did not.

Observations on all treatments were carried on as the bees left their hives for the field. Robber bees were numerous in the apiary throughout the test. In the case where the baits had been applied to plots not a single bee was observed to pay any attention to the baits. Not satisfied with the field tests, the authors placed samples of sweetened baits in piles on the hives, in the entrances, and in a large flat pan within the apiary. Only a single bee paid any attention to the bait. This individual attempted for about two minutes to fill her pollen basket from one of the piles of bait on top of a hive. Throughout the test bees flying to and from the field passed over the baited ground and piles of bait without being attracted to them. Robber bees occasionally circled near the piles of bait but did not alight or pay further attention to them.

The authors concluded from these tests that there is no foundation for fear of bees being poisoned from bran grasshopper or cutworm baits containing two gallons of blackstrap molasses per 100 pounds of dry bait. In addition, baits scattered under field conditions are sufficiently dry by 7 A. M. that they would not be in the least attractive to bees searching for moisture.

M. D. Farrar,  
Ill. Natural History Survey.  
V. G. Milum,  
University of Illinois.

# Getting Ready for the Fourth National Honey Cookery Contest

HOW would you like to make pound cake after pound cake, dozens and dozens of cereal cookies, and batch after batch of candy? That's what Miss Cranston has been doing at the new Testing Kitchen of American Honey Institute the past month. Day in, day out, the recipe testing and cookery research continues and the **all important** ingredient of every recipe tried or tested is **honey**.

All of the pound cakes, cereal cookies, and honey candies made the past month have been carefully scored and submitted to a number of folks for a **taste test**. The purpose of this work is to get two basic recipes for **honey pound cakes**, two basic recipes for **cereal cookies**, and two basic recipes for **honey candies**. These recipes will go into the **rules** for the Fourth National Honey Cookery Contest so homemakers throughout the United States will have the best possible foundation recipe with which to start their experimental work.

All Institute members will receive the contest releases. Additional copies of rules and basic recipes will be furnished to those promoting the contest in their own locality. So that this

Miss Cranston scoring cookies. Note the beautiful Monarch range. It has two ovens and six top units.

testing work will help you develop your own local market, we give you more data on the new Testing Kitchen. We suggest you tell your customers about this cooking laboratory. They will be the more anxious to try the recipes if they know they have come from a national laboratory. They'll be more enthusiastic, too, about sending entries to Washington if they know they can write your Institute about their trial batches. And here's the story of the new Kitchen.

In January, through a cooperative agreement with the College of Agriculture of the University of Wisconsin, the Testing Kitchen was moved into the new Honey Laboratory at the University. At this time the Kitch-



en was completely refurnished with new equipment and Miss Cranston allowed to devote the major part of her time to enlarging the Kitchen program.

Finding basic recipes for the Cookery Contest is just one small part of the Testing Kitchen's program. Seasonal honey recipes are developed for the homemaker. Special menus for honey banquets are outlined. Cooperating with the University beekeeping specialist, the necessary honey analyses will be made and projects concerning the greater utilization of honey in commercial fields will be undertaken.

And now for a bit of information about the lady in the picture. Miss Cranston, a foods and nutrition major, received her degree from The Stout Institute at Menomonie, Wisconsin, and completed the dietitians internship at Michael Reese Hospital, Chicago. She has served as a hospital dietitian, was a teacher of Home Economics and since 1934 has been associated with American Honey Institute. She is a member of the American Dietetics Association and treasurer of the Wisconsin Dietetic Association.

Let's all make her work more far-reaching by telling our customers about the Testing Kitchen, the Fourth National Honey Cookery Contest, and the Institute. And one of the easiest ways to encourage her in the New Testing Kitchen Program is to use the **Institute's honey recipes** in your own home and write and tell her how good the results were. Or if your wife didn't get good results, write and tell her that, too; reports of your cooking experiences, whether good or bad, help.



Miss Mercedes A. Cranston, Director, Testing Kitchen.



Lawrence apiary with tool and storage building in background.

# One Method of Swarm Control in Comb Honey Production

By Lewis Lawrence,

North Dakota.

HERE are a few pictures of my bees and my way of producing comb honey and controlling swarming. I have only thirty-four colonies but find my ideas work well for me, especially with swarm control.

In one picture you see a part of the apiary with a tool and storage building. My hives sit on two by four stands with a sheet of tar paper underneath each one to keep the stands from rotting and the grass from growing too close to the hives. That makes it easier to cut the grass around them and leaves a clean entrance flight for the bees.

In another picture you will see the ventilator which I use in comb honey production. I made these of ordinary lath making a frame to fit between the hive body and the bottom board, slatting across the frame to keep the bees from building combs from the bottom board to the bottom bars. [Somewhat like Dr. Miller used to use.—Ed.]

The slats are spaced about an inch and a half apart, but I think an inch might be better, as the bees once in a while will build burr combs between them. I leave openings on three sides with the backs closed. You will see how well ventilated the hive is with bees flying through the sides as well as the front entrance.

A third picture shows my comb honey hives using a shallow Dadant super with frames, for starting the bees to work in the comb honey supers.

I use strong colonies built up from spring management in two brood chambers, reducing each colony to one at the beginning of the honey-flow, removing combs of honey, and leaving all combs with brood and

eggs with one or two empty combs in the hive. I put the ventilator between the hive and the bottom board, and give each colony a 10-frame size comb honey super with twenty-four sections only, using cleats inside of each corner and one on each side in the middle one inch thick, and leave an air space for ventilation and travel without crowding and without staining the sections too much.



Hives on two by four stands on sheet of tar paper.



Ventilator between hive and bottom board.

I then place a shallow super above with foundation or combs, then close the hive. All bees are shaken from the extra hive body stocked with the combs of honey or brood that were left over and this body of comb is given to the extracting colonies to care for. If honey comes in with a rush, I sometimes give the strongest colonies two comb honey supers and one shallow super at one time.

Now, after examining ten days later, the bees may be storing honey rapidly with some building queen cells. I cut these out, taking all the full combs of honey out and putting a few frames of foundation in their place, thus leaving the brood chamber with laying room for the queen. [The clear brood nest system as discussed by E. L. Sechrist.—Ed.]

I put all combs of honey in hive bodies and store them on the other hives that are producing extracted honey. I cut the queen cells the one week and then look after the crop.

During the third week I remove a few combs of honey from the brood chamber, replacing with two or three frames of foundation again and removing queen cells if any. Usually there are not any as the crop is well on its way and young bees are working in the supers. These are well ventilated and you will be surprised at their progress. If the weather is too hot, stagger the supers a trifle, as, in a good honeyflow, there will be no danger of robbing. If there is no honey crop coming in, of course, I think it best to remove even the ventilator so the bees can protect their hives from robber bees.

I either remove comb honey as fast as it is sealed and put my unfinished sections in another super, or I put on bee escape boards and remove all finished sections, giving the unfinished ones back for the bees to complete.

I do not want No. 1 sections to be travel stained and grade No. 2.

I do not think I did such a bad job I doubled thirty hives of bees into sixteen for winter last fall. They came through in fine shape (1936) except two which starved and one drone layer and another queenless, so I had twelve colonies.

I was going to divide in the spring of 1936 and sent for ten queens, but the queen breeder had so many orders I couldn't get them. I made a three frame division giving two combs of brood and one of honey in hives without queen cells. I was lucky to have strong colonies. I even made two divisions from most colonies increasing my apiary to thirty-two.

The divisions were made the 7th and 8th of May. By feeding sugar syrup to the parent colonies, they soon built up to normal by the 15th of June and queens in the divisions were starting to lay about the 20th of May. I succeeded in raising eighteen queens out of twenty. These built up to normal colonies by the 1st of July. Parent colonies were overflowing with bees, showing what good queens will do.

I increased a few more, up to forty, but these late divisions were failures, leaving me with thirty-four colonies.

The honey crop last year started with a rush for a week at the end of June and then seemed to slow up on account of a heat wave that almost dried sweet clover blossoms. A few showers came finally which soaked the ground an inch deep, and with cooler days, the bees began to bring in honey steadily, giving my divided colonies a chance to build up so rapidly that some of them caught up, nearly producing as much honey as the parent colonies.

I think this new ventilator, with

the right management, gave me no swarming the two past seasons and the bees worked in the supers as well as my extracting colonies did.

—ABJ—

## Our Cover Pictures

### —A Contest for Everybody

The picture on the cover this month was sent in by H. A. Insinger, St. Charles, Missouri. It shows a bee on a visit to a hollyhock flower, a close and intimate subject.

The July cover picture was sent in by Mrs. H. Peter, Boundbrook, New Jersey, a photograph of Betty Ann Peter at 16 months of age taking her first lesson in beekeeping, one of those candid pictures of childhood which must be caught when they come or they are gone forever.

Quite a number since last month have sent in pictures which have been kept to use either on the cover or inside pages. When you send pictures for this contest, you should give plenty of information to go with the pictures and tell what book you want if you should succeed in having your picture kept for publication in either position.

The following are the books: "American Honey Plants," by Frank C. Pellett; "Huber's Observations on Bees" or "The Honeybee," by C. P. Dadant. If you prefer any other book published by the American Bee Journal, we will be glad to send your choice instead. Or, if you wish, we will extend your subscription to the Journal for three years. Tell us what you want us to do when you send in your picture.

—ABJ—

## Scale Colony Records

I have had bees here in the Pecos Valley of New Mexico for three years. Here is a record from my book of a three story, 8-frame colony. With twenty-three colonies I made 2,648 pounds of fine extracted honey.

Month	Date	Weight	No. Days	Gain
May	19	79	—	—
"	24	81	5	2
"	29	87	5	6
June	18	124	20	37
"	26	150	8	26
"	28	162	2	12
"	30	170	2	12
July	1	170	1	—
			(rainy)	
"	4	175	4	5
"	4	Extracted 82 lbs.		
"	5	93	1	—
"	9	146	4	53
			(13-1/3 lbs. a day)	
"	12	155	3	9
"	15	166	3	11
"	17	171	2	5
"	19	171	Extracted 55 lbs.	
"	19	116		
"	26	129	7	13
"	29	144	3	15
August	5	155	7	11
"	10	165	5	10
"	14	170	4	5
"	16	175	2	5
"	16	175	Extracted 49 lbs.	
"	16	126		
"	21	133	5	7
"	24	137	3	4
"	30	141	6	4
September	6	141	7	0

Honeyflow over for 1936.

Frank Summers,  
New Mexico.



# Honey Recipes on the Increase

By Charlotte Merrell,  
New York.

MRS. Charlotte Merrell is chairman of the Ladies Auxiliary to the Empire State Beekeepers' Association. She was formerly on the staff of N. Y. State College of Home Economics. She has two small children, her husband has a thousand colonies of bees which he operates for fruit pollination and honey production.

Her husband became actively interested in the Auxiliary work after the plan of organization was presented at the state convention of the Empire State Beekeepers' Association, December 1935. He went home and told his wife about the development and through Mr. Cary, secretary of the Empire State Beekeepers' Association, the Institute, and Mr. Merrell, Mrs. Merrell accepted the responsibility in 1936.

She held her first meeting with the "women-folks" of beekeepers in the summer of 1936. She is also a prize winner of the 1936 National Cookery Contest. Last summer she gave several lectures at Cornell during their Homemakers' Course.

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I HAVE just been looking through my honey recipes, clipped or copied from recent magazines. There is a surprisingly large number of them—at least it surprises me, for they seem to appear with rapidly increasing frequency. Six years ago I started my collection of honey recipes. It did not grow very rapidly. I seldom found one in a magazine and the few I discovered seemed intended for special occasions rather than for everyday use.

One of my first honey recipes was for "Honey Five O'clocks"—a dainty wafer sprinkled with chopped almonds and intended for the tea table. The recipes from recent magazines include such everyday dishes as honey baked apples, orange oatmeal bread, chocolate cookies, and baked ham glazed with honey. In a parents' magazine I found directions for cooking vegetables for children with a little honey to bring out their flavor (older people like them that way, too). An advertisement for pancake flour suggested that spiced honey be served with the pancakes. And then, for the person who likes unusual dishes, there is Rose Petal Jam. I've never tried that recipe but I may be tempted to do so when the roses are in bloom.

These honey recipes haven't appeared by magic. They are some of

the results of the work of the American Honey Institute. Mrs. Jensen and her staff have worked out recipes for honey dishes which any housewife can create with pride (and her family eat with much pleasure!). They don't stop at dainty wafers. They include all types of food. Their recipes are found in the honey bulletins published by some of the state colleges and beekeepers' associations, they have been broadcast over national networks by large commercial advertisers, they have been printed in newspapers and magazines. We cannot estimate the number of people they have reached but we can estimate that every beekeeper has felt the reaction. When a new customer comes for honey saying, "I want to try a recipe for honey chocolate cake I saw in the paper," you may thank the American Honey Institute.

Some of these delicious honey recipes have come to the Institute from the National Honey Cookery Contests. I only wish those recipes for Honey Date Strips and Honey Nut Brownies, prize winning cookies in the 1934 contest, contained directions for hiding them from a hungry family. I'd like to see how mine would taste if properly aged.

When the next contest comes along, let's each send at least one entry. We may not feel that our product will win a prize but we can be sure that each entry helps to increase the effectiveness of the display of these products at the national meeting. It will also show the Institute that the women are interested in its projects and will gladly cooperate. I can assure you that it's lots of fun to experiment with honey cookery. My own experiments before the 1936 contest netted the garbage can one entry and gave the family several opportunities to sample and judge. The possibility of winning a prize adds a delightful thrill.

Perhaps I have written too much about recipes but I find them as interesting as a good detective story and believe them to be an extremely important factor in selling food products. If the Institute can do such an excellent piece of consumer education work with honey recipes (and that is just one small part of its achievement) the beekeepers cannot fail to give their financial support and the women will also help in every

possible way. An organization such as a state or national ladies' auxiliary gives an opportunity to direct the efforts of all toward major objectives. Our New York State Ladies' Auxiliary was organized last summer with twenty-seven members. Inspired by Mrs. Jensen's enthusiasm and backed by her splendid cooperation and the help of her staff, it will surely accomplish something worthwhile for the beekeeping industry.

ABJ

## An American Honey Institute Trailer

Recently I have talked with a number of concerns who send out trailers to advertise and demonstrate their products. One electric company states that it has increased its sales better than 50% by carrying electrical appliances to the door of the country home.

What can we do about getting a trailer for the American Honey Institute? Equipped with a demonstration kitchen, it could be taken from one end of the country to the other, to attend beekeepers' meetings and demonstrations in the smaller towns and cities.

How would beekeepers like to have a portable kitchen that could be taken to a series of meetings in every state? Here is something for our beekeepers to think about, and suggestions are solicited.

Of course, the big "catch" in the whole idea is—how are we going to acquire a suitable trailer? But if the idea is once started, it may be that it will work out much easier than we expect.

The suggestion has been made already that the Institute make up a sticker to be sold for this purpose, and the proceeds to go into a trailer fund.

I would appreciate the comments of our beekeepers on this idea.

H. F. Wilson,  
American Honey Institute,  
Madison, Wisconsin.

ABJ

## Dr. Nixon's Early Importations

We had the pleasure of talking about bees and pollination before the one hundred members of the Kiwanis Club of Burlington, Iowa, a short time ago. An attentive listener was Dr. Nixon, formerly of Quebec, one of the earliest and probably the first to import Italian queen bees into the provinces. Old memories served the Doctor through many reminiscences of his beekeeping experience.

It is interesting that, in a cosmopolitan group like this, there is always someone familiar with bees and beekeeping, but it is seldom that an historical figure of this sort pops up.



# The Golden Wheel of Progress

By J. E. Eckert,  
University of California.

**A**BOUT nine out of ten meetings of county or state associations, in fact, the majority of all social, educational, and religious organization meetings are forced to digress from set programs to make pleas for the necessary funds or membership to carry on for another period or to meet past contracts. Such digressions always act as detractors especially for the casual visitor or the member who does not realize it takes more than inspiration, loyalty, and perseverance on the part of a few to carry on the activities of any organization. These financial pep talks are made necessary by an inadequate membership or by a desire to extend the benefits of organized endeavor to every person who could or should profit by the association and thought of their fellow beings. If the pleas are made often enough, they invariably have the opposite effect than that desired by their most ardent sponsors. But what is the remedy?

The American Honey Institute was organized by the belief—and direct assessment—of certain beekeeping supply and manufacturing concerns for the direct purpose of promoting the interests of the beekeeper—their customers—by a more adequate advertisement of honey. They wisely realized that paid advertisements on a national scale were out of reach of the beekeeping profession but that the word honey itself had advertising value of great significance if only the truth of its great goodness could be kept constantly before the public eye. Why not organize an investigation and publicity bureau to collect data, seek new information about honey and then get this information into the channels of commerce through the various educational and commercial organizations which could likewise profit by their association with the goodness of honey? If they could only demonstrate the feasibility of such a plan, the beekeepers would surely see its true value and assist them in carrying out the program to a successful goal—honey, the grandest natural health food of all, in every home and eating place in the land.

Their plan met with immediate success. The word honey gradually appeared in connection with the leading cereals, famous cake recipes, in wholesome candies, cookies, and breads. Baked hams looked more delicious, baked apples took on more flavor, fruit juices became more delectable and, what is still better, more mothers were acquainted with the healthful goodness of honey when it is used to modify the baby's milk and to sweeten its cereal. State, federal, and private researches in honey were encouraged and new bulletins on honey and its uses began to appear in increasing numbers. The wheel of progress was turning out a steady flow of golden honey news in all parts of the country. The annual carry over of honey began to lessen and this in face of a rapidly declining export market was indeed no mean accomplishment. The industry took on new courage and the future looked brighter.

The initial burden of financing this great work became too much for the few who undertook to write the checks and the beekeepers were invited to share in the expenses and to broaden the activities of the then firmly established American Honey Institute. Financial pep talks for its support became of more common occurrence and of more insistent tone until they lost much of their effectiveness among the very people the Institute aided most. Demands for continued service of the Institute were increasing from the various trades that had begun to depend upon

the Institute for reliable information concerning honey. Bakers are using more honey than ever before and new industries are realizing the commercial as well as the gastronomical value of honey and are leaning on the American Honey Institute for much needed support.

Experience has taught the beekeeping profession to find new and better ways of doing things. There is hardly a beekeeper in the land who does not have some piece of equipment or some idea that is an improvement over that of some one who had gone before him. And so it is with the new and sound proposal for raising the necessary funds to support the only source the beekeeping industry has of guiding the golden flow of honey through the tortuous channels of trade to the customer's table. Simply stated, it is a plan to permit every beekeeper to aid in proportion to his production in the support of the American Honey Institute—his own honey research and publicity institution—by placing a voluntary tax of three cents on each case of honey, to be collected at the time of sale by certain authorized wholesalers. The price per case is five cents in some states but in California was set at three cents at the last meeting of the California State Beekeepers Association in San Bernardino. A committee to be known as the Honey Promotion Committee, was named to secure signatures of beekeepers to an agreement authorizing the wholesaler to deduct the three cents per case at time of sale and to administer the disposition of the funds thus received. The outgoing president of the state association was authorized to appoint two members of the committee and the incoming president was to appoint two members with the fifth member to be elected by these four appointees. The members of the committee appointed were C. E. Lush and W. L. Bell, of Orange; George Adamson of Pomona, George Brown of Fresno, and T. L. Nicolaysen, of Salida.

A motion was passed governing the duties of the collection and of the



administration of this fund and read as follows:

1. An amount equal to the quota determined by the American Honey Institute for this state be sent to the American Honey Institute each year.

2. A reserve fund to be built up during the coming three years for the promotion of honey at the proposed International Beekeepers' Convention in San Francisco in 1939.

3. A balance to be used for the promotion of honey within the state.

4. A list of all honey producers agreeing to have 3 cents per case deducted from their payment at time of sale is to be published and also furnished to all buyers of honey in the state who agree to deduct and forward funds to the honey promotion committee. (The names of the buyers will be published and all wholesale buyers of honey will be contacted.)

5. This agreement to begin with the 1937 crop.

6. The members of this committee to be appointed annually.

The association wisely considered the possibility that more money than the state's quota to the American Honey Institute will be collected by this method and that the most desirable disposition of this fund would be for the promotion of honey within our own state. If we can secure the cooperation of other beekeepers in the different states to exhibit the most important commercial varieties of honeys now produced in the United States at the International Beekeepers Golden Gate Convention in San Francisco in 1937, the honey can be sold, the proceeds turned over to the American Honey Institute and the cost—as well as the benefits—will be distributed widely over the entire country. The second and even more urgent need of the balance of the fund will be spent in the printing of honey booklets and circulars to be distributed at different state and county fairs and in giving demonstrations at these fairs and at other public expositions that will tend to materially increase the demand for California honey.

Various beekeepers have contacted the majority of the wholesale buyers of honey and the plan of giving every beekeeper in every county the opportunity of signing the voluntary pledge of three cents per case is going forward as rapidly as possible. The names of the signers will be published in the pages of this journal as fast as time and space will allow. Hundreds of beekeepers have already signed and the writer suggests that all those who have not been approached and who wish to cooperate in this worthy movement, that you signify your intention of doing so by writing to this journal or to one of the members of the committee. The agreement will be continuous as long as the producer desires to continue it

in force, thus making additional financial pep talks unnecessary.

The signing of this agreement for the deduction of three cents per case of 120 pounds of honey will replace any pledge that the signers may have made for financial support of the Institute. In most cases the amount thus given will be less than the original pledge but the total amount of all received should be greater because of the larger number sharing in the expense of the Institution and in the promotion of honey in California.

The citrus and apple industries have long been practicing a similar method of supporting their research and publicity organizations and look what progress they have made. So let us all aid in keeping the wheel of progress turning to keep honey flowing in a continuous golden stream through the various channels of trade to the table of the consumer.

ABJ

## Gasoline Not a Disinfectant—Unless Burning

By W. H. Hull,  
Virginia.

Looking over some back numbers for information on foulbrood I notice in the July, 1935, Questions and Answers department, a statement to the effect that soaking infected equipment in gasoline for a few minutes will probably kill any germs. I had that same idea for cleaning up equipment, but inquiry at the Bureau of Public Health, in Washington, D. C., brings the information that gasoline is not an effective sterilizing agent. A letter from this Bureau states that typhoid bacteria were not killed after soaking for an hour in gasoline; and "as these germs are comparatively easy to kill we must assume that, for all practical purposes, gasoline is not a disinfectant." However, as stated in the Editor's Answers, exposure to a flame for a few seconds will do the trick. Painting liberally with gasoline and then igniting is effective if the work is done quickly so that burning takes place before the gasoline evaporates. I found that the inside of a hive body treated in this manner would burn for 10 seconds and then go out. This seemed to be ample. It takes about half a cup ( $\frac{1}{4}$  pint) of gasoline for the inside, and the same amount would be required for treating the outside, though I doubt that a colony of bees would ever be infected from the outside of a hive unless it had been smeared with honey. Mr. Hambleton, as is well known, recommends washing, scrubbing with a stiff brush both inside and outside, using a pound of lye to five gallons

of water (or strong soap suds), keeping it hot, and rinsing the hives in clean water after washing.

Where plenty of water is available this method is faster and, on the whole, easier than painting with gasoline and burning. This because the burning must necessarily be done at some distance from the gasoline supply and, since the gasoline evaporates so quickly, it can be done only a little at a time. For instance, the inside and outside of a hive body must be painted and burned separately, so that there is a great deal of walking back and forth. It takes very little fire to keep the water hot enough for washing and the work can all be done in one place, especially if you can connect up a hose for the rinsing tub.

If there are only a few pieces of equipment to treat, then burning is the handier method. The following equipment is needed; a bucket of water in case the burning gasoline ignites the wood; a cup, handy for measuring out the proper amount of gasoline; a container for gasoline, an empty coffee can or something like that; and a good sized paint brush. Put the desired amount of gasoline into the coffee can with the brush, carry it and the hive to be treated ten or fifteen paces away, stick a match into your mouth (so as to have it handy), paint the hive liberally, corners first, then the spaces between, and throw your lighted match onto it, keeping your can and brush, however, out of the way. The blaze will last for about ten seconds but sometimes the corners continue to burn. If so a sprinkle of water will put out the flame.

ABJ

## Watering the Combs

I have a system which works in keeping bees away from watering troughs. Every spring when I am going over the bees the first time, I take one or two combs that have no brood in them and not much honey. In them I put a good supply of water, so that they can help themselves whenever they need it. They seem to breed faster and one is well paid for the extra trouble. I have practiced this for several years.

Dan S. Kittson,  
Manitoba.

ABJ

## Feeding the Dead

Talk about Indians in the early days placing tobacco on the graves of departed warriors! They had nothing on my neighbor who placed a section of honey near his two dead colonies. My bees got the honey; and, judging by their disposition, I don't believe they got the joy from it that either the spirits of the braves or the white men who stole it, got from the tobacco.

Ivan Whiting,  
Illinois.



# Retention of Moisture in Honey\*

*Practical Applications of This and Other Properties to Promote Greater Use of Honey*

By R. E. Lothrop,

Carbohydrate Research Division, Bureau of Chemistry and Soils,  
U. S. Department of Agriculture.

**I**N promoting the use of honey great stress has been placed on two of its valuable qualities, namely flavor and high energy value as a food. These are indeed very valuable characteristics of honey. It is important, however, to consider also some other characteristic properties of honey which are of great importance in its utilization and which are, indeed, the determining factor from the standpoint of certain large, potential industrial consumers.

Very little exact information is available on certain of the properties of honey, as well as its behavior under various conditions of use. In many cases this information would be quite valuable for promoting the use of honey for certain purposes. It would also indicate which type or types of honey are most suited for specific purposes. This consideration is of particular importance in view of the very wide variation in character and behavior of honeys from different floral sources.

More suitable market outlets for certain types of honey which are not well adapted to table purposes is very desirable. This honey is frequently difficult to dispose of for table use even at comparatively low prices. It is probably true that marketing of this honey for table use tends to depress the sale of the better grades of honey. It is hardly to be expected that new honey customers will be attracted to honey by offering them this type of honey for table use. It would be better to dispose of such honey for purposes for which some property or quality of the honey besides flavor or appearance could be more advantageously utilized.

## Ability of Honey to Absorb and Retain Moisture.

One of the properties of honey that has been recognized to a certain extent, but regarding which there is little exact knowledge, is its power to absorb and to retain moisture. This is known technically as "hygroscopicity." This behavior must be reckoned with in the storage of honey. When stored at comparatively low temperatures under moist atmospheric conditions, moisture is absorbed and dilution of the honey takes place, which in turn tends to promote fermentation. On the other hand, storage under conditions of low atmospheric humidity will result in loss of moisture from the honey, so that it tends to become heavier in body.

These facts are comparatively well known to those engaged in handling honey, and probably do not need repetition here. This same property of honey, however, has not been so carefully considered in connection with its utilization, and it is this particular phase of the question that it is desired to emphasize most in considering the hygroscopic nature of honey.

## Relative Hygroscopicity of Honey and Other Saccharine Liquids.

To what is the hygroscopic nature of honey due? In a general way sugar syrups of all kinds tend to absorb moisture. Ordinary cane sugar syrup is hygroscopic; and so are glucose syrup, and commercial invert sugar syrup and malt syrup. Sugars in general are hygroscopic by nature, and this property can be and is utilized advantageously in a number of industrial processes. There are, however, marked differences in the degree to which this particular property is exhibited by various sugar syrups, and this must be taken into

consideration in using these materials whenever hygroscopicity is a factor to be considered. In addition, of course, the value of the hygroscopic agent depends on the degree to which it exhibits this ability to absorb and retain moisture.

The relative ability of the different kinds of sugars to absorb and retain moisture has been investigated to a limited extent. It is known, for example, that levulose, which is the predominant sugar present in honey, is more hygroscopic than most other sugars. It is not difficult to determine these facts as long as we are dealing with pure sugars. In case of natural products such as honey, however, certain non-sugar substances which are present apparently exert a very marked influence on hygroscopicity, so that honey behaves quite differently from what would be anticipated if it is considered only from the standpoint of the sugars present.

Browne\*\* has shown that under certain conditions honey is more hygroscopic than either invert sugar or levulose. He also found impure levulose to be more hygroscopic than the pure sugar. The limited studies that have been conducted along this line indicate that the hygroscopicity of sugar substances such as honey depends on the composition, both from the standpoint of the sugars present, and from the standpoint of certain non-sugar constituents that are present in comparatively small amounts. Since the composition of honey varies considerably from both of these standpoints, we would expect different types of honey to show corresponding differences in hygroscopicity.

An investigation was made, therefore, to obtain some information on  
(Please turn to page 290)

\*Paper read at the International Beekeepers' Convention held in San Antonio, Texas, November 23 to 25, 1936.

\*\*Journal Industrial and Engineering Chemistry, vol. 14, pp. 712-14 (1922).

# EDITORIAL



## The Naturalist Beekeeper

The golden age of beekeeping seems to have closed when the naturalists turned their attention to other fields and men of commercial interest became dominant in the industry. True it is, that honey must be sold and money must be made from bees to enable their owners to live but men of an earlier day were more interested in the behavior of the insects than in the sale of their product.

One has but to read the arguments of early observers to realize to what heights of intensity their enthusiasm reached. There is still much to be learned and it would be greatly to the advantage of the industry if some of the old time interest could be revived.

Some saw the bee the model of intelligent perfection while others could see only blind instinct and it was with difficulty that they could reconcile their differences on a sane middle ground.

When Reaumur, a pioneer observer, attributed to the honeybee the ability to solve without hesitation the problem of building her comb, "in the most stable manner possible, in the smallest possible space, and with the greatest possible economy," he called attention to architectural ability which has long been the marvel of naturalists. As to whether this ability is the result of intelligence or of instinct has resulted in endless argument.

Buffon, a jealous rival of Reaumur contended, "These cells of bees, these hexagons, so much extolled, so greatly admired, furnish me with a further proof against enthusiasm and admiration. This shape, perfectly geometrical and perfectly regular, is here merely a mechanical effect and a rather imperfect one at that, like those which often occur in nature and are observed in her crudest productions."

Even present day observers are by no means agreed as to whether the six sided cell is the natural result of pressure against soft material used in building, or whether the bee consciously constructs her comb after this pattern.

When Huber published his "New Observations" in which many new facts were brought to light, another book soon appeared which was devoted primarily to calling attention to the so-called mistakes of Huber. We now know that Huber was correct in nearly everything he reported and his critic was mistaken but such rivalry served to keep alive an intense interest in everything relating to the bee.

It has been but a few years since the bee papers were filled with the discussions of such men as Langstroth, Charles Dadant, Moses Quinby and A. I. Root. At times the arguments were heated and unkind things were often said in the flush of anger but it all served as a great stimulation of interest in beekeeping.

Again it may be said that a revival of such interest would be good for the industry.

ABJ

## Weather More Normal

For the first time in several years the greater part of the country is getting a normal spring rainfall. Every year since 1930 some sections have suffered severely from drought. In 1934 and 1936 crop losses were heavy over a very large area.

It is too early to forecast this season's crop but the widespread distribution of moisture is encouraging to everybody. Meadows and pastures have benefited greatly and prospects generally are favorable. In localities where the clovers have not already been killed by last season's dry weather the beekeepers are hopeful of a bountiful year.

## Conservation

One of the most important questions facing the American people is that of a wise policy of conservation of what remains of our national resources. If we are to continue as a prosperous nation we must save our soil, our forests and our water supplies.

It is very difficult to establish any continuous policy because of the frequent change in administration and only through an aroused public interest is it possible to stop the wasteful practices of the past.

Beekeepers as a class are conservators. The nature of their occupation is such as to insure appreciation of the things which tend toward national prosperity. With an abundance of flowering plants, lush pastures and rich forests the beekeeper is prosperous. As these things disappear he tends toward poverty. It is to his immediate interest as well as future welfare to conserve them all.

We may well take pride in the fact that through our prosperity the community is helped toward further prosperity. In finding her own sustenance the honeybee adds to the wealth of all through better pollination of the flowers she visits. For every dollar that her services earn for the beekeeper five are added to the profits of the farmers and fruit growers on whose acres she forages.

National losses through the washing of soils, the waste of forests and the rapid runoff of our water supplies are appalling. These cannot continue for long without disaster. Recent floods and drought along with frequent dust storms have served to call attention to the danger of the situation. China where millions are on the verge of starvation offers a striking example of the ultimate effect of such wasteful use of water, soil and trees. Let us lend our influence to forward every movement looking to the solution of this problem.

ABJ

## Honeybees and Red Clover

Discussion of the possibility of producing a red clover with a shortened corolla tube suited to the needs of the honeybee has appeared from time to time for more than half a century. In all this time there has been little indication of any accomplishment along that line.

Mention was recently made of the work of Dr. J. Zofka, of Central Europe, who has applied himself to this problem for twenty years. He has worked by crossing red clover with others with shorter corollas and has succeeded in producing red clover plants with tubes from six to eight millimeters while the common red clover has tubes from nine to eleven millimeters in length.

The American Bee Journal has secured seed from Dr. Zofka for planting at the experimental apiary at Atlantic, Iowa, where the plants will be watched with great interest. We are hopeful that at last some real progress has been made in solving this problem which has agitated farmers and beekeepers for so long.

Some of the plants which Dr. Zofka has bred have flower tubes but little more than half as deep as the common run of red clover plants. Should they succeed with us as they have with him it may be possible that seed will ultimately be available for mid-western farmers.

It is not the aim of this magazine to undertake extended research but rather to cooperate with those who are prepared to give the long and painstaking attention to detail which successful research involves, and to assist in bringing to public attention the needs of the beekeeping industry.

Next to the disease problem the question of dependable pasture is perhaps of most importance to the beekeeper.

## Venom of Snake vs. Bee

On several occasions the question has been raised on the Postscript page as to whether immunity from bee stings would offer any protection against the bite of a rattlesnake. A difference of opinion is apparent in the letters coming to the editor relating to it. However, most of those writing have only common observation without scientific evidence on which to base an opinion.

Dr. Bodog F. Beck, author of the book, "Bee Venom Therapy," who is probably as familiar with the subject as any scientist, writes to tell us that the venom of the honeybee and the venom of the rattlesnake are chemically and physiologically the same.

We are glad to have this information from a man like Dr. Beck since it carries the assurance of authority. Since the venom is the same, the beekeeper should suffer less severely from the bite of a rattler than a person who has not established a degree of immunity to bee stings. Of course the snake injects the venom in a much larger quantity and it would seem to be quite possible that severe consequences might follow a bite even though one was accustomed to stings.

Cases have been reported to us where a beekeeper was bitten without serious injury and we are led to assume that the immunity which had been developed to stings served as protection against the venom of the snake.

ABJ

## Truth in Advertising

The American Bee Journal takes pardonable pride in the kind of men who use its advertising columns. They present the merits of their goods in modest terms and leave the impression that the buyer can depend upon getting what he pays for.

When one listens to the extravagant statements of some present day advertisers who use the radio, it is a relief to turn to the pages of a publication like this and note the reasonable statements of men who offer their wares.

Since the present publishers took over this magazine they have used every precaution to exclude irresponsible persons from its advertising columns and to present only honest statements which can be relied upon by our readers.

ABJ

## Sensitivity to Stings

A reader writes to ask whether there is any way to overcome supersensitivity to bee stings. Because a single sting makes him very sick he feels that he must find some means of overcoming this sensitivity or give up the bees.

Unfortunately there are a few people who seem to be unable to adjust themselves to stings to a point where it is safe for them to work with bees. The wife of our field editor is so sensitive that the effect of a sting is so serious that her doctor has told her that her life is in danger.

Attempts are sometimes made to overcome this handicap by special injections of the venom. This is done by physicians who are prepared to deal with any emergency which may result. Whether this can be depended upon to give relief remains to be demonstrated. It is a subject worthy of careful study by competent men.

ABJ

## Honeyflow and Temperature

In the May issue of Beekeepers Item, E. Oertel makes an interesting attempt by means of charts to show the relationship between maximum and minimum temperatures and the honeyflow from palmetto.

A mere glance at the charts is sufficient to show that there must be a very direct relationship as the flow rises and falls at the same point on the chart which registers a change in temperature.

The presence of other factors such as rainfall complicates the problem and makes it extremely difficult to determine the exact relationship. When rain comes it not only changes the immediate condition but the presence of added moisture may increase or diminish the subsequent flow.

Those making a study of the factors which influence

the secretion of nectar find a very complicated problem. If only it were possible to work under controlled conditions it would be much simpler. Perhaps one day will be still while a high wind will blow on the next. The results will be greatly changed by other things than temperature.

Mr. Oertel states "when the entire period for each year is considered these charts fail to show any consistent relationship." He mentions the variation in number of blossoms open at one time as leaving no uniformity of forage available from day to day.

He found a tendency which indicated larger yields in days following the coolest nights which corresponds to observations of the flow from sweet clover in the northern states.

Mr. Oertel is working in a field which has received too little attention and one which presents many obstacles to the worker. It is to be hoped that he will receive sufficient encouragement to permit continuing the work with other plants and over sufficient time to establish definite facts on which the beekeeper can depend.

ABJ

## The Institute Report

The report of the American Honey Institute is out. It contains 48 pages of very interesting information. Every beekeeper who is a member of the Institute has probably received his copy before this. When one reads this report and sees something of the many contacts made by the staff he has reason to feel gratified at the returns from his contribution.

With more than half a million leaflets containing honey recipes scattered to the far corners of this vast country, with many radio broadcasts featuring honey, numerous articles in newspapers and magazines, cooking demonstrations, lectures, and personal instruction to many, there is little room for surprise at the improved demand for our product.

President Kelty says, "No permanent good was ever accomplished until every branch of our industry cooperated and concentrated their efforts in the American Honey Institute."

With a total income of \$11,846.33, the Institute has been able to bring honey to public attention throughout the nation in such a way as has not been previously done since the old days when honey was a well known staple. With the continuation of such efforts there is reason to expect that honey will return to its former popularity and that it will regain its former place in the estimation of the American housewife.

There is no longer any question as to the value of the service rendered by the organization. With larger funds much greater progress will be possible. There is every reason why the beekeepers should provide the money. Increased dividends in the form of higher prices and better demand are sure to follow. Those who have given most in cash and service are most enthusiastic regarding the American Honey Institute.

ABJ

## Importance of Extension Work

The writer has recently enjoyed the privilege of visiting several localities in New York where the official work in beekeeping is very well organized. The effects of such efforts are very apparent and one is impressed with the high standard of beekeeping in comparison with some states where little official recognition is given to our industry.

Extension lecturers are of great assistance to beginners and to amateurs generally. It is not a question of making more beekeepers as some seem to fear, but rather a question of making better beekeepers of those who decide to join our ranks. The enthusiasm of the amateur with only a few colonies is often felt by the people of an entire neighborhood with the result that far more honey is consumed than such an individual can supply. Much of the market for the product of the commercial honey producer is developed by the efforts of the amateur. History indicates that the times of greatest prosperity to the beekeeper have been when there were the greatest number of enthusiastic amateurs.

## No Need for a Seat in the Apiary

That is a nice neat little stool pictured in the December issue, but we use a system that eliminates the need of any seat at all, and still enables the work of examining a hive to be done without stooping. It is simply Dr. Miller's old plan of placing hives in pairs. We sit on one hive while examining the other.

There are some real arguments for putting hives in pairs. It is possible to get a lot more hives in a yard without crowding—about forty per cent, as we have calculated, than where they are placed singly, and cutting down the number of steps is always profitable in any business, especially where so much equipment has to be carried and distributed by hand. The entrances to the hives are arranged so that the bees in the right-hand hive of a pair use an entrance on the extreme right hand side of the floor-board, while those in the left-hand hive have their entrance at the left hand front corner. Under such conditions bees will never go to the wrong hive, unless possibly to the corresponding hive of some other pair in the row, or in the row behind or in front. At least it can be claimed that the bees from one hive of a pair will not enter the other one.

In working hives in pairs, the cover of one is first taken off and placed on the ground behind the hive. The operator then takes his seat on the other hive—it is solid and large and comfortable. The examination over, he rises, takes the cover from the hive he has been sitting on and covers the hive he has just examined. Then sitting down again he goes at the open hive. When he is through the cover from the ground is placed on the last hive examined. This saves the handling of one cover for each two hives examined, which amounts to something. Some might object to it on the rather remote ground that a cover so changed might carry infection, but our covers are separated from the combs by burlap mats and we feel that even if a colony should become infected we would discover and destroy it long before the cover would be affected.

Hy. W. Sanders,  
Manitoba.

—ABJ—

## Those Sechrist Articles

When it was suggested by the editor that beekeepers keep the Sechrist articles handy and study them, I was glad, and I really studied and put into practice everything that was given. I have selected the main points of each article and applied it to my locality. These articles are an outstanding contribution to beekeeping.

Eleanor J. Neale,  
Michigan.



# Marketing Honey

By Edwin J. Anderson,  
State College,  
Pennsylvania.

THE profitable marketing of the annual honey crop is one problem of beekeeping which gives every beekeeper considerable worry. This problem deserves most serious thought since if a beekeeper sets the price of his honey too high he may have most of his crop left over when the season ends, or if he sets the price too low his price tends to force down the price obtained by others and he loses the difference between his price and the price that might have been obtained. Those who are busy during the active season caring for bees and producing honey often find it difficult to take off sufficient time to develop a marketing program. The producer may also find it difficult to readjust his trend of thoughts from those of a producer to those of a salesman. However, every beekeeper must be a salesman since every crop of honey that is produced must be sold to some type of buyer.

Many of the large producers prefer to ship their entire crop in large containers and then leave the jobbing and retailing of honey entirely to the large bottlers. If the producer lives in a section where there is but a sparse population this program may be justified. In the areas of greater population, however, it would seem best to have each beekeeper job and retail as much of his honey as possible.

By developing the local markets a great deal of honey will be sold and many new customers will be found who would not otherwise purchase honey. This type of marketing by the beekeeper has a tendency to stabilize the markets and reduce proportionally the fluctuations in wholesale price which now respond directly to the production of honey in the commercial or exporting areas. It is evident that one of the great difficulties in marketing honey as in marketing fruit and other farm products is the great difference in production from year to year. One year there will be a heavy production and the beekeepers will work hard to build up a good market. The next year there may be a low average production, and as a result many customers will stop using honey because it is not available or

The roadside stand—one channel for honey distribution.



ing honey in small job lots or direct to the consumer.

There is another type of consuming public which is represented by the large manufacturing concerns such as the bakers, and the manufacturers of cosmetics. In this market group salesmanship such as is offered by the American Institute is invaluable. The Institute is in a position to locate possible outlets of this type and develop them. The work done with W. K. Kellogg and Company is an outstanding example. It is undoubtedly necessary to have this type of organized representation for the beekeepers so that markets may be developed for honey without reference to brand and without the handicap of having to sell honey to these markets. The American Honey Institute is the only organization that meets these qualifications.

A word might be added in closing in regard to the fundamentals of marketing honey. It seems that the first essential is for the beekeeper to own equipment which will strain, liquefy and bottle honey in a convenient and efficient manner so that a high quality product may be placed in the market without excessive labor or mess. In the second place a dependable service should be offered the public so that the honey may be purchased in the desired form and

in a clean and attractive container. And finally the beekeeper should endeavor to present his product to the public through every possible channel, such as roadside markets, stores, and through individual salesmen. The product should be advertised by demonstrations, newspaper advertising, window displays, farm products exhibits, radio talks and talks at groups of different kinds. Here again American Honey Institute helps by providing beekeepers with tested honey recipes, radio continuity, demonstrator's outlines, display suggestions, newspaper stories, and consultant service on general sales promotion. It requires continuous effort in this direction both by the individual and the Institute if worthwhile results are to be obtained.

A reference might be made here to an unusual method of marketing honey as practiced by Walter Doud, of Mansfield, Pennsylvania. Mr. Doud has a serve yourself market located along the highway and during the past few years has lost money on only one occasion. The sales for several months of last summer were as follows: August \$36.37, September \$41.73, October \$57.60. About the only labor connected with the stand is to replace honey that was sold and collect the money. The accompanying photograph shows Mr. Doud's serve-yourself honey stand.

ABJ

## Michigan Bonded Honey

By Elmer Carroll,  
Michigan.

When one buys Michigan Bonded Honey, he knows at once that the producer has paid one dollar registration fee to the State Department of Agriculture. Also that he has posted with the Department a \$500 indemnity bond and an agreement that states he is packing his honey as per state specifications. In setting grade rules for bonded honey, the recommended federal grading scale is used. (U. S. Department of Agriculture Circular No. 24 revised.)

If you buy a jar or pail of honey that bears the Department's blue bond label marked "Michigan Fancy Bonded" it means that the honey in that pack is free from damage caused by overheating, fermentation, honeydew, or objectionable flavor or odor; that it is free from cloudiness caused by air, pollen or other substances; and that it is clean and free from foreign materials such as wax, propolis and dust. Honey under this grade is strained through a standard bolting cloth of 86 meshes per inch at a temperature not exceeding 130 degrees. The honey must be well ripen-

ed and shall weigh not less than 11 pounds and 12 ounces per gallon of 231 cubic inches at 68 degrees.

If the container bears the Department's yellow bond label marked "Michigan No. 1 Bonded," the above grading has been used except that a standard bolting cloth of 23 meshes per inch has been used as the cleanliness test.

The \$500 bond and the dollar registration are annual, the bond costing \$5.00 per annum. The bond labels are issued in two sizes, the larger for case and bulk shipments, the smaller for unit containers. The former cost the producer \$4.50 per thousand, the smaller ones, \$1.50 per thousand with name and address imprinted. The proceeds from registration and label sales is used in advertising Michigan bonded farm produce.

Michigan honey producers should write the State Department of Agriculture at Lansing for Department Ruling No. 400, and to the U. S. Department of Agriculture for Circular No. 24 revised.

## That Alabama Tornado

At a few minutes past six o'clock on the morning of April 5 a tornado struck a section of central Alabama nearly eighty miles wide uprooting trees, demolishing houses and damaging property generally. While property damage amounted to several million dollars there was fortunately no loss of life. This is the first tornado that has ever damaged beekeepers of this section to any extent. Several queen yards were seriously damaged. Among these were Jasper Knight, Hayneville, Ala., Taylor Apiaries, Luverne Ala., and J. M. Cutts & Sons, Montgomery, Ala.

In our own yard eighty per cent of the hives were overturned and torn up. Some of them were carried a quarter of a mile by the wind. The bees in these hives were apparently all dead but we set them up and put on the covers just as soon as the wind and rain abated enough for us to work. Many of the bees revived but queen cells in all stages were a total loss. Nuclei were scattered everywhere. Some of them were merely turned over or the covers blown away while others were smashed to bits. The roof blew off our storehouse and parts of it were carried for half a mile.

This tornado coming just when it did cut down the production of queens for the season. By the time these yards could be put back into production of cells it was too late to make up more nuclei and get queens from them in time to use for the peak of package shipping. Some breeders cancelled 25 per cent of all orders while others tried to fill their orders just as fast as possible. Naturally there was quite a bit of delay. Yards that were not hit by the tornado have been held back by the late spring and production of packages in the South is quite a bit under the 1936 production.

We can only build on the ruins and look on the bright side of such things as the eight year old daughter of the writer did when she looked out and saw that the garage was demolished she exclaimed, "There is one good thing, we have plenty of kindling."

Paul Cutts.

## Simple Top Entrance

I put a tenpenny nail under each corner of the lid and so I can raise lids any time. This makes a top entrance. The bees are usually crawling around, but in previous winters, bees would sit stiff in the cluster.

I had a shelter on three sides and a roof over each colony open to the south. I lost one out of six colonies.

Iowa Reader.

## Comments on Resistance

I was much interested in Charles Mraz' article on this subject in the March Journal and especially was I interested in his experience in immunizing bees by inoculation against foulbrood.

I have never had experience in immunizing bees against foulbrood. But I have had experience in immunizing hogs against hog cholera and it is a recognized fact that it works with hogs. Why not the same principle in bees. There is a thought here worth considering.

For several years Stewart and Hansen conducted a thoroughbred hog business. In 1912 we had a very fine herd of brood sows. We were in a sale circuit and one week before our sale date in February cholera broke out in our sale stock. We lost the majority of them and also our fall pigs. We were fortunate in having our breeding stock across the road and were successful in saving them. As soon as their pigs were large enough we vaccinated them and their mothers and moved them into the pens, yards, and pasture in which only a few weeks before \$1500.00 worth of hogs had died.

The next winter we had another sale and we guaranteed this stock against cholera even though put in cholera infested pens.

Then reasoning from the known to the unknown we have this proposition. As the immunized mother hog while nursing has the power to impart immunity to her brood from cholera, why not the possibility of the immunized mother bee having the power of imparting immunity to her brood? I don't know. The subject is too deep for me but stranger things than this have developed.

Forty years ago I was handling several hundred colonies of bees. At that time authorities were agreed that bees had no power to clean up their combs of American foulbrood. About thirty-five years ago two articles were published in Gleanings in which I took issue with this authority and described a method I was successfully practicing of having the bees clean up their own foulbrood and come out clean and healthy. This brought the wrath of beedom down on the head of Gleanings for publishing a thing so absurd and dangerous.

It is now decidedly refreshing to note free discussion on this very important subject and to find that bees not only do clean up American foulbrood combs but actually refuse to be contaminated when given the deadly virus.

Let the good work go on and results worthy the effort will materialize.

Henry Stewart,  
Illinois.

## Adrenaline Treatment for Bee Stings

By Mrs. Arthur Dodd,

Michigan.

IT has been my intention for some time to write to the Journal and other beekeepers' magazines, suggesting that more publicity be given the adrenaline treatment for bee stings.

In "Gleanings in Bee Culture" for October 1932, is an article by Natt N. Dodge, "An Effective New Treatment for Bee Stings," giving the history of the discovery of the method, by Dr. W. Ray Jones, of Seattle, Washington. I quote from it as follows:

"Although the majority of persons who frequently receive stings normally become immune to a greater or less degree, it sometimes happens that instead of acquiring immunity they develop a sensitivity to the poison. Dr. Jones states that this acquisition of sensitivity is one of the little understood facts of medicine. If a sensitized person receives a single sting, the poison, instead of acting locally as in normal individuals, causes the capillaries all over the body to open up, releasing the watery portion of the blood. Swollen blotches appear upon many parts of the body, the palms of the hands and soles of the feet itch, breathing becomes labored, and the heart action is affected.

"Persons who have become highly sensitized may die within a short time after receiving a single sting. Death occurs, not because the sting has penetrated a vein or artery, as is generally believed, but because of the sudden anaphylactic reaction in a sensitized individual.

"Now, thanks to the light thrown upon the matter by Dr. Jones, the lives of many sensitized persons may be saved. Also, normal persons who receive so many stings that the same results ensue as in the case of sensitized individuals, may be saved from death. Such depends, of course, upon the prompt action of a physician or some other person capable of administering treatment. For critical cases, treatment consists of frequent hypodermic injections of a one-to-one-thousand solution of epinephrine. The solution may be obtained from the druggist, or epinephrine tablets may be procured and kept at hand so that a fresh solution may be made very quickly if needed. Epinephrine (formerly known as adrenaline) is worthless unless given hypodermically."

Until the appearance of this

article, I had been stung a few times, and always had a bad time with swelling water blisters around the spot, so that my husband tried to keep me and the bees separated as much as possible. It had never made me at all sick, though. After reading that article in Gleanings we told our family doctor about it, with no idea that we would ever need it, and the following spring we are sure that his knowledge of it and speed in reaching us, saved my life.

I was stung very lightly on the back of the wrist, and rubbed the stinger out at once. Within ten or fifteen minutes I began to feel hot and prickly and thought I had become a little over-heated. Came inside and in a very few minutes became as violently sick as I ever want to be. Aside from the nausea feeling, was hot and prickly all over, my throat, tongue, lips, and ears especially. My throat seemed to close, breathing was difficult, and my heart seemed about to break all speed records. It must have been thirty or forty-five minutes before the doctor came. By that time I was only partly conscious, red and swollen, with black welts the size of a half-dollar on my face, and in a great deal of pain from an inflammation of the bladder brought on by the poison. Within five minutes after the hypodermic was given my face began to clear and I felt much easier. Within a short time the doctor left. Later, I broke out all over with big hives which alternated from red to white with the skin between, but after all I had just experienced, I didn't mind that. Had to stay in bed and keep quiet the rest of the day, but the next morning was able to do my work, though I felt weak and my arm was as swollen and painful as ever.

I have taken these hypodermics twice since, but didn't get nearly as sick either time. Two years ago we got the needles, syringe, and the ampoules but have not needed to use them. I have not been stung. The ampoules seem to be a newer and more convenient way of putting up the adrenaline, than the forms mentioned in the article in "Gleanings."

The only other case I know much about is that of a little daughter of Allen Tibbs, a beekeeper in Niles, Michigan. They called this same doctor, and he gave the same treatment to her, with the same results. If you

or your doctor wish to get any more information, our doctor is Dr. Robert Henderson, Niles, Michigan. He has told me that a second injection must not be given inside of two hours. But I have never needed but one.

There is certainly a lot of room for education of beekeepers, the public and even the medical profession along this line. I have not talked to anyone, or even another doctor who

had heard of it—and everyone thinks a bee sting is funny.

In an issue of *Colliers*, perhaps during February or March of 1936, there was an article on allergies which is very interesting to read. This sensitivity to bee sting poison is an allergic condition, and is mentioned in that article.

As I understand it, the adrenaline is an emergency treatment and in no way a cure.

ABJ

## Swarm Control Measures, a Criticism

By E. S. Miller,

Indiana.

**M**R. SECHRIST'S instructions as set forth in his articles on the "Control of Queens and Swarming" are mostly correct. His system of management should be studied by all who would excel in the production of honey. However, I think he is in error in several particulars.

In the first place, any attempt to requeen in the swarming season by removing the queen and introducing a queen-cell seldom succeeds. Almost invariably the bees start other queen cells and the virgin queen disappears with or without a swarm. I know this to be true through many years of experimenting.

Secondly, to try to prevent swarming by removing a comb or two from the center of the brood nest and inserting foundation involves extra labor and does not accomplish the desired result. In fact, it is more apt to induce swarming by dividing the brood, leaving the queen on one side. If there is any necessity for removing combs of honey from the brood chamber, it would indicate a poor queen. If queen-cells are started so that there is danger of swarming, all of the brood should be removed, not just part of it, replacing it with drawn combs. The bees may be shaken off in front of the hive and the brood used to strengthen weak colonies or to build up nuclei. Trying to stop swarming by cutting out queen-cells is an utter waste of time. True, it is common practice among beekeepers, but why do they do it? Probably because grandfather did. The bees can build queen-cells faster than the beekeeper can cut them out.

Third, it is not good practice to replace one or more combs with foundation in the brood chamber for the reason that the bees will not do

a good job of drawing out the combs down to the bottom bar and are very apt to gnaw away the lower front corner of the foundation to be replaced later with drone comb. Wherever practicable, foundation should be drawn out above the brood. However, if one does not have combs and finds it necessary to hive a large swarm on foundation, fairly good combs may be secured if an empty hive body is placed under the one containing full sheets of foundation. The bees will then form a cluster suspended from the bottom bars of the frames above and work up gradually. The under hive body, which has no frames, should be left a few days or until the new combs are drawn out entirely down to the bottom bars, after which it should be removed. By means of this device the weight of the cluster is taken off the foundation, thus avoiding stretching in warm weather. Furthermore there is less danger of the bees absconding.

Where standard equipment is used in the production of extracted honey, there is no better method of swarm control than a modified form of the Demaree plan. The queen should be confined to the lower story by means of a queen excluder with a food chamber above the excluder. In the spring or summer when the brood nest becomes somewhat congested and before the bees acquire the swarming fever, move all but one frame of brood up to a third story, filling in below with drawn combs. If the honeyflow is prolonged and the brood chamber again becomes crowded so there is likelihood of swarming, repeat the operation, moving the brood up to a fourth story. By this method production per colony is often more than double that secured through hiving swarms.

### Alpha Sweet Clover

Much interest was manifested in the new crop when Alpha sweet clover was first offered in western Canada. Because of the fact that instead of one main stem as has the common sweet clover, the Alpha sweet clover is much branched with fine stems resembling alfalfa. It is from this character that the name is derived. Apparently it is in every way equal to common sweet clover as a honey plant but much superior as a forage crop.

Seed was secured for a trial on the Dadant farms near Hamilton but the result was disappointing. After the failure here we were interested in finding whether there was some special reason or whether the plant is not adapted to this region. Inquiry indicates that Alpha sweet clover is peculiar in its requirements and that it has not succeeded except in the northern areas. In the letters that have come to us concerning it have been bits of information of so much interest that we are passing them on to our readers in the hope of helping to spread the plant where it will prove of value.

From a letter from Dr. C. F. Patterson, of the Saskatchewan University at Saskatoon, the following is quoted:

"From the standpoint of the beekeeper, Alpha sweet clover has an advantage over the ordinary strains in that the flowers are more numerous. While it does well in the prairie provinces it does not thrive in Ontario and in certain parts of the United States. It appears to be more exacting in its demands on the environment than the ordinary form."

Concerning Alpha sweet clover in Saskatchewan, Dr. T. M. Stevenson, of the university, writes:

"Alpha clover is being grown fairly extensively and is preferred as a hay and pasture plant, due to the fact that it produces finer stems and a higher percentage of leaf than the ordinary sweet clovers do. It is also a heavier seed producer than the common sweet clovers and produces an abundance of flowers which the bees work continuously during the flowering period.

"I am of the opinion that the Alpha variety may not do well in the more humid areas and in areas where there is a relatively high average temperature."

The explanation of the failure of Alpha clover in this region comes to us in a letter from R. S. Dunham, of the branch experiment station at Crookston, Minnesota. Mr. Dunham writes:

"I rather think your trouble with Alpha is in its susceptibility to mosaic and stem canker. We have been unable to harvest any seed from this crop also. Farther north seed produc-

(Just turn the page, please!)

tion is practical, but the farther south one goes, the less successful is the seed crop."

Thus we find that another crop of great promise is denied to us of the mid-west. It is highly important to learn the peculiarities of such forage crops and make the information available to those who are interested in their cultivation. Alpha sweet clover appears to be a plant of great promise in the region to which it is adapted.

It is interesting to note that in 1935 Dr. M. C. Tanquary planted ten acres of Alpha clover in northern Minnesota and secured 3,000 pounds of cleaned seed. In 1936, however the crop was a disappointment.

Frank C. Pellett.

ABJ

### Royal Mint Cake

In an issue of the Bakers Weekly is an advertisement from the Wesson Oil and Snowdrift Sales Company featuring their mfb-formula 51 for bakers. A pure vegetable shortening for cakes and icings. This particular advertisement which appeared in the Bakers Weekly for January 2 has a picture of the royal mint cake, a beautiful chocolate layer cake with a white filling and alternating rows of chocolate and white frosting on top.

The mix calls for cake flour, sugar, mfb-51, milk powder, cocoa powder, eggs, honey and bitter chocolate. In the recipe 2 pounds of honey are used.

So the parade of new recipes by bakers and baker supply and ingredient manufacturers continues under the leadership of American Honey Institute. We certainly thank the Wesson Oil and Snowdrift people for this help.

(By the way, this is a magnificent looking cake. The advertisement was in full color. Perhaps your baker would like to try it. It appears in Bakers Weekly for January 2, 1937.)

ABJ

### Nut and Honey Brown Bread

1 1/2 cups graham flour  
1 1/2 cups white flour  
1 egg  
1 cup honey  
1 tablespoon butter  
1 teaspoon salt  
1 cup buttermilk  
1 cup raisins  
1 cup walnut meats chopped  
1 teaspoon soda

Sift the two flours. To the well beaten egg add the honey and shortening which has been slightly warmed and blended. Add the salt, then all the buttermilk, except enough with which to dissolve the soda. Stir in the sifted flour, raisins, and chopped nut meats. Then add the dissolved soda. Bake in a slow oven for one hour. This will make two medium-sized loaves.

Mrs. Benj. Nielsen,  
Nebraska.

# Beekeeping in Norway

By O. Wold,

North Dakota.

I HAVE never seen a write-up from Norway in the American Bee Journal, and I thought it would be a good idea for the beekeepers in this country to see what the Norwegian beekeepers are doing.

Last summer I made a trip to Norway which I had left, as a boy of fourteen, thirty-five years ago. There has been many great changes in that time, in beekeeping as well as everything else. During my stay I had an opportunity to visit with several beekeepers and to find out their viewpoints.

In marketing their honey they are far ahead of us. Small beekeepers' organizations are situated in different localities throughout Norway, with Oslo, the capital of Norway, as the honey central for all the beekeepers' organizations. Honey may be marketed individually or through the honey central. A price is set that no one can undersell. In 1935 this price was about twenty-five cents per pound, and no difficulty was incurred in marketing the honey. Labels are furnished to the members by the honey central, but the honey must measure up to a certain quality before it can be used.

The yield per colony was not very large in proportion to what we are used to, as thirty to thirty-five pounds was considered good. The surplus came mostly from white clover, basswood, and heather. The latter did not grow in the lower altitudes.

They use a smaller hive than used in this country. The name of the hive was the Model hive. The frame measured 14 1/2 x 10 1/2 inches (outside measurement), ten frames to the hive. They use shallow supers, seldom

more than two supers put on at a time. There is an outside hive as a protection for the regular hive, and a space between the two that allows for packing. The outside hive is kept on all year, the beekeepers practicing outside wintering.

All the honey is extracted and the bees are fed sugar syrup for the winter. They are fed from thirty to forty pounds of syrup per hive. The bees winter excellently on the sugar syrup and it is much cheaper than to leave the honey.

The bees are mostly Italians and some Brown. Queens are purchased from Denmark, Germany, and Austria although there are some queen breeders in Norway, but these queens are rather late in the season. Imported queens cost about a dollar apiece. Bee supplies and bees are priced somewhat higher than in this country. A five-pound container costs about thirteen cents and foundation sells at \$1.00 a pound. I might say in this connection that they have the same trouble with disease as we do, but they have bee inspectors in the different localities that are taking very drastic measures in eradicating the disease.

Beekeepers in Norway seem very enthusiastic, and enjoyed hearing about beekeeping as carried on in this country.

Norway has an excellent bee journal **Birokteren** published in Oslo by the Norwegian Beekeepers' Organization. This journal has been in circulation for fifty-one years and has many able writers.

Most of this information was received from Kristian Hermansen, Skreia, Norway.

The author's friends, Mr. and Mrs. Hermansen, in their apiary in Norway.





Mr. Hermansen with two of his double-wall Norwegian hives.

ABJ

## Arsenical Poisoning of Bees

By Mykola H. Haydak,  
University Farm, Minnesota.

AIRPLANE dusting by arsenical poisons is a menace not only to bees but to domestic animals as well. This fact was discussed in several articles in the previous numbers of this Journal. In some industrial countries of Europe beekeepers have trouble with arsenical poisoning of a different kind. There are many foundries and other iron works in the region of Tesin in northern Czechoslovakia. It was noticed that many colonies of bees die in the vicinity of the region in a well limited area. "The symptoms (this and the following quotations are taken from a paper by Dr. Svoboda which appeared in the Annals of the Czechoslovakian Academy of Agriculture, Vol. 11, pp. 589-594, 1936) of this disease are the following ones: bees leave the hives unable to fly and fall on the ground. They repeat their unsuccessful flying attempts, jump and show convulsive movements; finally they die. The dead bees are contorted, their tongues protruded." Microscopical and bacteriological investigations did not show the presence of the germs of any known bee disease. However, the rectal contents of the diseased bees "were watery, of greyish green color, usually with very scarce remainders of pollen grains. This was a very characteristic feature. Healthy young bees kept on pollen and honey stored by diseased colonies did not show any of the above mentioned signs. It was found by observations of local beekeepers that if the diseased colonies were moved even a short distance (for instance three-fourths of a mile) they soon recovered and did not show

anything abnormal. All attempts to infect healthy colonies in another place by the diseased ones failed."

Therefore, Dr. Svoboda started a chemical examination of water from the nearby flowing river, honey and pollen from diseased colonies. There was no sign of any toxic substance which could have caused the disease. A sample of diseased bees showed a positive reaction for arsenic. It was found that there was from 0.000005 to 0.00006 mgm. of arsenic per bee. When healthy bees were fed sugar solution to which a corresponding amount of arsenic was added they died, showing typical symptoms of Tesin disease. Obviously, arsenical compounds which were present in the fumes emanating from foundries caused death of the diseased colonies.

Dr. Svoboda tried to feed solutions of various compounds in order to alleviate the pathological condition. Finally he found that the best results were obtained when ferric hydrate (*ferrum oxydatum dialysatum*) was used. "The diseased colonies were fed with sugar solution containing in one liter 10 cubic centimeters of 0.5 per cent water solution of  $Fe(OH)_3$ . The dying of bees ceased, the colonies developed well, and showed no sign of the disease. Naturally, it is necessary to use enough sugar solution that all the bees of the colony can take it. According to the results of these experiments, the best method is to feed the diseased colony every tenth day one liter of sugar solution containing 10 cubic centimeters of 0.5 per cent ferric hydrate."

## More "Hawaiian Honey"

I have just read in the January issue (page 31) about Hawaiian honey. The name of the author is not given, but evidently he is not quite correct on some points.

Very little honey is produced on Kauai Island. I should say Kauai ranks last in production. It is the Garden Island and so called because nearly all the land surface is under cultivation to sugar cane and other crops that do not yield nectar. What little honey this island does produce is very poor quality dark honey.

However, the mistake may have occurred in this way. Niihau is very near Kauai. Niihau is devoted to stock raising and is covered with algaroba timber from which most of the honey of the islands comes. Niihau does rank high in honey production and all this honey must be brought over to Kauai in small boats and re-shipped from there. Hence, government reports may show the honey being exported from Kauai.

The three other large producing islands are Molokai, Oahu, and Maui. Hawaii, because of its elevation, does not produce much algaroba honey, but honey on that island is somewhat darker than algaroba. Lani, the pineapple island, did have a going bee business, but the pineapple corporation, finding honey production was not profitable, has abandoned the bees and they are falling in decay.

I am much in favor of honey grading. R. C. Elliott is doing a valuable work, but I cannot believe that grading will double the price the producers will receive for their crops. However, it will increase the value and in every way is to the producers' interest. Algaroba honey is of splendid quality comparing favorably with anything produced anywhere else in the world. It deserves to be better known. The Islands will never be extensive exporters of honey and in time, because of its limited production and its points of merit found in no other honey, the honey of the algaroba will command a premium price.

H. E. Coffey,  
Hawaiian Islands.

ABJ

## Sulphur Fumes

I should like to remind readers of E. S. Miller's "Sulphur for Bee Moth" (November, 1936, page 561) that the smoker used to sulphur supers should not be used again for the bees. I used sulphur in my smoker to destroy hornets. Afterwards I scraped the smoker clean and put it in boiling water with soda. Also, I built a fire in it. But in my apiary the next day the fumes from the smoker killed many bees and it was quite a while before the effect of the sulphur was really gone.

John J. Legge,  
Saskatchewan.

## 1936 Queen and Package Bee Season

From J. M. Robinson, Managing Director of Marketing Agreement and License for Shippers of Package Bees and Queens, has come in tabulated form figures on the volume of business reported by the shippers operating under the agreement during 1936.

Alabama shipped the largest number of queens, 36,910, with Georgia and Mississippi second and third. More queens were shipped in June than in any other month, 26,138, and queens were reported sold during every month in the year, with seven in January and one in December.

Three-pound packages with queens were more popular than any other size, while of the queenless packages, more two-pound were sent than any other. April was the largest month for packages with queens and, as one would expect, May saw the shipment of the most queenless packages.

Of nuclei, 1,635 were reported shipped, most of them in April.

In total, 206,756 queens and 262,551 pounds of bees were reported sold during the season.

ABJ

### Observations

I select a cool, cloudy day to put my bees in the cellar. I use a sleigh with long bunks and a few planks and put on two tiers of hives — from twelve to twenty at a load. I haul them from eight to twelve rods, on bare ground, of course. The sleigh runs more smoothly than a wagon and there are no wheels in the way.

I take the bees out of the cellar in the same way, except that the work is done after dark, about the first of May, when there is a pretty good chance of a fine day to follow. We note all light colonies and mark them. They get the first attention, as soon as possible.

I do not clip any queens until I put on the first supers. All queens reared this season are not clipped until the following season. To keep track of the age of a queen I use the following method. This dash — indicates a young queen. When she is clipped, I give my pencil a clip across this dash +, thus, meaning one year old. If I find she is already clipped, I just make another clip ++, indicating that she is two years old and needs renewing.

Dan S. Kittson,  
Manitoba.

ABJ

### Carbolic Acid Experience

My experience with the use of carbolic acid is that it will not drive the bees out of more than one super at a time. However, I have not found any odor in the honey after using. A few seem to have had trouble in this respect.

Geo. Culver,  
Colorado.

## Retention of Moisture in Honey

(Continued from page 281)

the relative hygroscopicity of various types of honeys as compared with common sugar syrups. Honeys of a number of different types were chosen so as to include those representing extremes in composition. For example, tupelo honey was selected because of its unusually high levulose content, mesquite honey for its comparatively high dextrose content, tulip-poplar honey for high non-sugar content, buckwheat honey for high content of colloidal constituents, etc.

Small quantities of these honeys, and also of the sugar syrups that were to be compared with honey, were carefully weighed and spread over the surfaces of small weighed glass containers. These were then

taining to moisture absorption and retention of several types of honey in comparison with other sweetening agents.

It will be noted from the results given in Table I that at 68° F. honeys of approximately normal density neither lose nor absorb moisture at an atmospheric relative humidity of 60%. This point was found to vary somewhat due in part to differences in density among the samples, being a little higher for high density and a little lower for low density honeys.

Using this value of 60% atmospheric relative humidity as the critical point of moisture absorption for honey, and consulting relative humidity charts for various sections of the country, the following general

TABLE I.  
Ability of Honey to Absorb and Retain Moisture Compared With Other Sweetening Agents.

Material	Moisture Content	Relative Humidity at 68° F.—per cent			
		30	50	60	70
White Clover Honey	17.0	—8.98	—4.41	+1.36	+9.01
Tupelo Honey	18.2	—10.38	—6.18	—0.59	+6.37
Buckwheat Honey	17.0	—8.44	—5.91	+0.45	+6.80
Tulip Poplar Honey	18.2	—10.73	—6.54	—0.65	+5.81
Mesquite Honey	17.8	—9.45	—5.83	+0.76	+7.30
Commercial Invert Sugar	20.0	—12.78	—8.48	—2.54	+3.23
Levulose Syrup	17.8	—9.67	—5.11	+0.92	+9.03
Commercial Glucose	12.5	—4.32	—3.16	+0.54	+5.43

\*Values given are averages of several determinations.

placed in closed chambers and kept under controlled conditions of temperature and atmospheric humidity. The loss or gain in weight of each sample was determined from time to time. This was continued until the weight of each sample became constant, i.e., until no loss or gain in weight occurred. Tests were conducted with the honeys at their original densities, and also with all samples adjusted to exactly the same moisture content (20%) for comparative purposes. The temperature used for most of the tests was 68° F. The degree of atmospheric humidity to which the samples were exposed varied in the different tests from 30% to 70%, expressed as per cent relative humidity.

Tables I and II contain data per-

ization may be made. When stored out of doors in winter, honey of approximately normal density would tend to absorb moisture in all sections of the United States except in the large area lying between Texas and the Pacific Coast, and north to Montana and Idaho. In summer, on the other hand, honey would be so affected only in the area bordering the Gulf of Mexico and the Atlantic Coast, and in the northern Michigan area.

When the tests were conducted on honey samples that had been adjusted to 20% moisture content in all cases (Table II), the critical point for moisture absorption was observed to lie between 60% and 65% atmospheric relative humidity. This point

TABLE II.  
Relative Hygroscopicity of Honeys and Other Sweetening Agents.  
At the Same Density.

Material Adjusted to Moisture Content of 20%	Ratio of Levulose to Dextrose	Relative Humidity at 68° F.—per cent		
		55	60	65
White Clover Honey	1.17	—4.44	—1.70	+1.10
Tupelo Honey	1.70	—4.92	—2.40	+0.80
Buckwheat Honey	1.02	—4.68	—2.08	+1.18
Tulip Poplar Honey	1.14	—5.00	—1.48	+2.06
Mesquite Honey	1.03	—4.88	—2.74	+0.16
Orange Honey	1.26	—4.98	—1.34	+1.02
Levulose Syrup (Impure)		—4.70	—0.12	+3.30
Levulose Syrup (Pure)		—4.98	—1.04	+2.80
Commercial Invert Sugar	0.91	—4.98	—2.54	+0.44
Commercial Glucose		—11.14	—7.12	+4.82

\*Values given are averages of several determinations.

varied somewhat among the different samples due to differences in composition. The honeys were found to be more hygroscopic than commercial invert sugar syrup, and much more hygroscopic than commercial glucose syrup, but less hygroscopic than a syrup prepared from levulose. Levulose, either as a sugar or as a syrup, is, however, not a commercial article and certain honeys of types which contain a high percentage of levulose are the most suitable sugar products available for specific use for which levulose sugar is desired. The high levulose content of honey of certain types may therefore be capitalized for certain specific uses.

Tests were not conducted with pure cane sugar, because at such high concentrations cane sugar syrups crystallize readily. When crystallization occurred either in the honey or in the syrups being tested, it was observed to alter the hygroscopicity of the liquid to a very material extent. The results given in the tables are for syrups that remained liquid throughout the duration of the tests.

We now come to the practical application of these observations. Practical baking tests were conducted to determine whether or not the ability of honey to retain moisture when it is mixed with the other ingredients in baked goods is comparable to its behavior in the pure state. The ability of certain constituents to retain moisture and to prevent drying out

losses in moisture when the loaves were exposed to controlled temperature and humidity conditions over a period of several days were recorded in each individual case. The loaves of bread were exposed to an atmospheric relative humidity of 60% at 68° F.; the cakes were exposed to 50% atmospheric humidity at 68° F.

The cakes in which the various honeys were used showed better moisture retaining qualities than those in which the other sugar syrups were used (with the exception of levulose syrup). Buckwheat honey showed the least moisture loss of all the honeys tested. The results in the baking tests agreed well with the results obtained with the pure honeys and syrups. The results were more pronounced with the cakes than with bread owing to the larger amount of sugar, syrup or honey used in cakes. A complete grading of all breads and cakes baked was made by the standard scoring method and this served as an excellent means of comparison. In these tests, however, the primary object was to determine loss or retention of moisture.

Table III shows the moisture losses of cakes baked with several types of honey compared with cakes baked with some common sugar syrups. A plain cake recipe was used in which one-half of the sugar required by the regular formula for cake of this type was substituted by the various sweetening agents tested. The foregoing

TABLE III.  
Comparative Moisture Losses Among Cakes Baked With Various Types of Honey and Other Sweetening Agents.

Material	Initial Wt. of cake after baking	Wt. of Cake after seven days	Loss in Weight		
				grams	grams
Tupelo Honey	279.0	266.0	4.6		
Buckwheat Honey	281.8	271.0	3.8		
White Clover Honey	277.5	264.5	4.7		
Commercial Invert Sugar	278.8	263.5	4.8		
Commercial Invert Sugar + Sucrose (2:1)	277.3	264.5	5.5		
Levulose Syrup	281.3	269.8	4.1		
Glucose	267.7	262.5	5.2		
Malt Extract	259.0	245.0	5.4		
Sucrose	279.0	263.6	5.5		

is of great value for use in baked goods, particularly in cakes. The hygroscopicity of honey, i.e., its ability to absorb and retain moisture, and thus to retard the drying out and staling of baked goods, is of great importance to the baker.

The three types of honey selected for the tests were chosen because they represented extremes in composition, and are not necessarily low grade honeys. The tests were conducted in a manner similar to that in which the pure honeys and syrups were tested. A series of loaves of bread and a series of cakes were baked† by a standard method and the

results illustrate the practical utilization of a property of honey other than flavor or food value. It may be of interest to point out the very large potential market for honey for uses in which hygroscopicity is a factor and in some cases the chief consideration.

The amount of sugar used in ordinary bread doughs usually ranges from 3% to 6% based on weight of flour used. The functions of sugar in bread baking which have usually been considered are: (1) a source of food for the yeast, with a resultant evolution of carbon dioxide gas that causes the bread to rise; (2) as a source of sweetness; (3) as a source of color for the crust. Our score sheets show that honey serves all these purposes

(Just turn the page, please!)

†The actual baking tests were conducted by the Baking Laboratory of the Food Research Division of the Bureau under the supervision of Dr. J. A. LeClerc and Mr. L. H. Bailey.

## "Introducing Queen Bees"

This is the title of a booklet by G. H. Keen, of New Zealand, and published by The Australasian Beekeeper, Elgin Street, West Maitland, N.S. W. We like his introductory paragraph, "It is generally acknowledged by the most experienced and successful beekeepers of the world today that to get the best results from your hives it is necessary to requeen frequently. The hive overflowing with working bees of the right age at the right time is the one that gives the beekeeper the large paying surplus, and the young queen is the one to be depended on to do this job, other conditions being right." And this paragraph, too: "Under some circumstances it is advisable to requeen every year, and in comparatively few cases does it pay to keep a queen more than two seasons."

It is the first attempt to bring under one cover the things known about introducing queen bees. If there were enough interest, we would secure a few copies from The Australasian Beekeeper for distribution. I do not know what they would cost, but it does not look like an expensive publication.

ABJ

## Pollination Temperatures

The problem of pollination seems to be getting more complicated all the time. J. C. Kremer, Michigan State College bee expert, says, "Bees do not work freely on fruit blossoms unless nectar is flowing, and the nectar flow is not continuous. Other factors being favorable, nectar secretion occurs in fruit bloom in Michigan at 65 to 75 degrees F. seldom below or above this 10 degree range. At temperatures below this minimum, nectar usually does not appear and bees do not fly freely except from the strong colonies. Bumblebees fly freely at temperatures considerably below those at which nectar appears, and as ripe pollen is found at these lower temperatures, they usually are pollen gatherers and distributors even though nectar is absent."

The above paragraph is from The Herald - Press of St. Joseph, Michigan, issued Thursday, January 28, and sent by G. J. Korn, Michigan.

ABJ

## Nucleus Queen Introduction

I have tried introducing queens by taking 2 combs of brood and bees from a strong colony, putting them in an empty box with the queen in her cage and moving the nucleus to a new location. With me this has been 100% successful in securing introduction.

E. Guenther, Jr.,  
California.



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very well, and any added advantage of honey such as increased moisture retention that would retard drying-out and staling would give it a more decisive value in bread baking in comparison with competitive products. This is of considerable importance in view of the very great potential outlet for honey for use in bread baking.

**Cakes and Cookies.** While there are no reliable figures available on the quantity of cakes and cookies baked by commercial bakeries in the United States, it is true that in recent years a very large increase in the quantity of cakes baked by commercial bakeries has taken place. This increased production is due primarily to a marked improvement in the quality of cakes produced by commercial bakeries which in turn is due largely to the use of ingredients of better quality.

Since large bakeries, like many other large industrial units, maintain technical staffs who are striving constantly to improve their products, they are quick to appreciate the technical advantages offered by certain types of ingredients. The use of hygroscopic agents such as commercial invert sugar, glycerine, etc., is a well established practice in cake baking. The advantage that honey offers in this respect over other similar sugar substances should give it added value in cake baking.

While discussing the subject of baking, it is pertinent to point out that fifty years ago bread was baked largely in the home. Today, commercial bakeries furnish most of the bread consumed. During recent years the task of cake baking has also been passed on to commercial bakers to a constantly increasing extent.

Therefore, any program for promoting the use of honey for baking purposes must consider more and more the requirements of the commercial baker. It is not meant to imply that less emphasis should be placed on the use of honey in the home, or for home baking. The important point to keep in mind in connection with this commercial development is that commercial bakers are more exacting with respect to their requirements and, because of their larger scale of operation, are more impressed by technical advantages than are home users. Consequently, the use of honey by bakeries, as well as by other large commercial users, must involve more and more a definite knowledge of the various properties of honey in relation to the requirements of the user.

**Tobacco.** A considerable quantity of sugar is used for treating tobacco, particularly plug and cigarette tobaccos. It acts as a hygroscopic agent to prevent drying of the tobacco. It will probably surprise many of you to learn that their use represents the largest single market outlet for

maple sugar at the present time. One large manufacturer of cigarettes is reputed to use about 4,000,000 lbs. of maple sugar annually for this purpose. A number of hygroscopic agents besides maple sugar are used in tobacco, some manufacturers preferring to use such substances as glycerine and diethylene glycol.

Cigarette manufacturers, as a rule, set up rigid requirements and specifications for the materials which they use. The hygroscopic nature of honey should be of distinct value when considering its suitability for use in tobacco. However, there are undoubtedly other factors besides hygroscopicity that influence the suitability of honey for this use. This is a subject which has never been studied adequately. Since such a use for honey represents a large potential market outlet, a thorough and detailed study of its suitability for this purpose is very desirable.

#### Other Industrial Outlets for Honey.

There are a number of industries in addition to those already mentioned that offer outlets for comparatively large quantities of honey. In each case the utilization of honey by these industries involves a number of chemical and technical problems. These problems become much more involved when attempting to utilize a product such as honey, which is subject to natural variations in composition and behavior, than is the case with manufactured products of more uniform composition. In this connection, it should also be pointed out that manufacturers of sugars and syrups maintain technical staffs which cooperate with the various industries in which their products are used, or may be used, for the purpose of promoting the use of these products. Such technical staffs are constantly occupied in solving problems that arise in connection with the use of these products.

**Candy Manufacture.** The problems involved in utilizing honey in candy manufacture are numerous. There are such questions as flavor and flavor retention, caramelization, and effects on crystallization, in addition to the problem of moisture absorption and retention. Certain types of honey when used in candy are known to retain a greater proportion of the flavoring constituents than others. Some types of honey withstand heating (less darkening in color) better than others.

Some honeys are known to froth badly when used in candy batches. Then there is the influence of certain non-sugar constituents of the honey on the type of crystals formed in the candy mass. There is probably no other industry which presents such a variety of chemical and technical problems in utilizing honey as does the candy industry.

**Manufacture of Ice Cream and Ices.** Here the problems are mainly suitability of flavor and influence on the texture and consistency of the frozen cream, which includes influence on the melting point. It is needless to emphasize the large potential outlet for honey for use in manufacture of ice cream and ices.

**Brewing.** Comparatively little information is available on the suitability of honey for this purpose. A considerable quantity of sugar, principally the sugar dextrose, is used by brewers in producing beer. It is interesting to note that this same sugar dextrose is present in honey. Materials which have been prepared especially for use by brewers, and which are the result of considerable development work are manufactured and sold for this purpose.

There are a number of technical problems involved in the use of honey for such purposes, as for instance the rate and character of the fermentation of the sugars, the effect of the particular honey flavor on the character of the beer, the effect of honey non-sugars on the beer (for example the influence of proteins and other non-sugars on the turbidity and other characteristics of the beer). The use of honey has actually been tried by breweries, but so far the information developed regarding its merits, in comparison with competitive products, is extremely limited. The use of honey for brewing purposes would certainly call for careful study because of the exact requirements demanded.

**Wine.** The use of honey in wine making is a very old art. Various names such as mead and hydromel have been used to designate this product. Some of the problems involved in the use of honey for this purpose include a consideration of the flavor characteristics of the honey to be used; the extent to which this flavor is carried through the fermentation process to the final product; the effect of various types of wine yeast on both rate of fermentation and on flavor characteristics; the mineral constituents of honey and their influence on fermentation; and requirements as to addition of nutrient salts to facilitate the action of the yeast.

**Vinegar.** Since the processes of fermentation for wine and vinegar are closely related, the technical problems involved are quite similar. Honey intended for use in preparation of vinegar would probably be confined to the lower grades of honey and to waste honey.

In this brief review of a number of industries that offer very large potential market outlets for honey, it is not intended to convey the impression that no investigational work has been done with a view to utilizing honey for these purposes. On the contrary some excellent work has been

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 Personally reared powerful GOLDEN QUEENS improved and bred up from Italian stock, 60c each postpaid. Remarkably beautiful bees, gentle, large, and champion honey producers! 2-lb. pkg. with queen, \$2.30. 3-lb. pkg. with queen, \$3.00.  
**SPOERRI APIARIES**  
 St. Bernard, P. O. :: Louisiana

**D JOSEPH DUSEK COMPANY**  
 726 WEST RANDOLPH STREET, CHICAGO.

**HONEY**  
**ALL GRADES**  
**COMB AND EXTRACTED**  
 Any quantity.  
 (Reference, First National Bank)

**Modified Dadant Hives  
 for Canadian Beekeepers**

The large hive was well liked in the big-crop districts last year.

Canadian Beekeepers  
 order from

**S. P. HODGSON & SONS**  
 NEW WESTMINSTER  
 BRITISH COLUMBIA

**The  
 GOAT WORLD**  
 OFFICIAL ORGAN OF THE  
 American Milk Goat Record Association

Oldest and largest Milk Goat magazine published. Broadest circulation. Articles by best authorities. Subscription rate: one year \$2.00; three years \$4.00; five years \$6.00. Sample copy 20 cents.

ADDRESS:  
 The Goat World, Vincennes, Indiana

**PACKAGE BEES  
 AND QUEENS**

The rush is now over and we can fill orders promptly.

Queens that will please you.

Stock recently imported from Italy.

Two-Pound Pkgs. with Queens \$1.95  
 Three-Pound Pkgs. with Queens \$2.55  
 Select Untested Queens ----- \$.50

**THE CROWVILLE APIARIES**  
 J. J. Scott, Prop. WINNSBORO, LA.

Have you sent a donation to the  
 Honey Institute yet this year?

carried out on various aspects of honey utilization. Rather, it is desired to point out the need of a much more systematic and a more thorough-going survey of these varied potential uses for honey. Particular emphasis should be placed on the more advantageous utilization of certain specific properties of honey with a view to greater and more varied use.

It should be further emphasized that the utilization of products by industries is based on technical knowledge. Manufacturers of sugar products generally maintain technical staffs to study the needs of various industries in connection with utilization of their products, and to solve problems that arise in the use of these products.

The same information is needed for honey. Every possible use of honey should be studied and each particular property of honey which makes it suitable for each type of use should be accurately determined; likewise, the relative importance of the various properties in relation to each type of use; and on this basis, the most suitable types of honey for each use should be ascertained.

Each kind of honey will thus find the use for which it is best suited and for which it will bring the best price. There will be a place for every kind of honey and the net result will be to the best advantage of the entire honey industry.

ABJ

**Vinegar from  
 Unsalable Honey**

By Harry I. Rich,  
 Louisiana.

Vinegar of excellent quality can be made from unsalable honey. As methods of producing honey at lower cost are constantly being improved the future of producing it for this purpose is fast becoming commercially practicable.

When honey is used for this purpose it must be diluted by the addition of soft water until it contains from 13% to 14% sugar. As heat must be employed in the process of dilution it is necessary to use cultures of yeast and acetic bacteria. This dilution also reduces the percentage of chemical elements which are necessary for the growth of yeast and the acetic bacteria. In order to supply the essential elements nitrogen and phosphorous should be added. I suggest the following formula for a barrel of vinegar: Extracted honey 40 lbs., water 30 gallons, ammonium phosphate 2 ounces, potassium tartrate 2 ounces.

Your barrel will now be about three-fourths full which is correct. Then add one cake of compressed

yeast to every five gallons of the mixture, being sure that the yeast is thoroughly mixed in a portion of the liquid before adding it to the mixture. The barrel should be covered with cheesecloth to prevent the entrance of insects and exclude light. The liquor should be stirred daily to break up crusts and prevent formation of molds and to insure a complete fermentation. Stirring also prevents the action of acetic bacteria which would be harmful at this stage. Usually from five to six days are necessary for this fermentation depending on the temperature.

When the alcoholic fermentation is complete the liquid should be strained through a cheesecloth to extract any foreign material that may have entered during the fermentation process. The liquor should then be put into a barrel which has had its walls thoroughly cleaned and soaked with strong vinegar. This discourages propagation of unwanted bacteria which might cause off flavors of the finished product.

Now at least a gallon of good unpasteurized vinegar should be added if no pure cultures of acetic bacteria are available. If neither of these can be obtained any good strong vinegar will do.

The alcohol of the yeast fermented honey is now turned into acetic acid. This takes place most favorably in a temperature of 70 degrees F. or over.

Acetification should be allowed to proceed until a strong vinegar is produced. This can be recognized by taste. This process will take about four months in which time care must be taken to keep out all insects, see that the vinegar has excess to air with plenty of surface exposed and be sure not to break the growth which covers the vinegar.

When the degree of acidity is satisfactory the vinegar should be filtered through several thicknesses of cheesecloths and placed in small containers completely filled and tightly sealed. This prevents contact with air which would render the vinegar worthless after acetification is complete.

Vinegar has a raw biting taste when first made but becomes mellow during storage.

By following these instructions you should be able to make a vinegar of superior quality to any ever purchased.

ABJ

**Tupelo Honey**

The Florida Grower says that the production of tupelo honey in the picturesque Apalachicola region has just begun to assume market proportions. "There have never been enough bees to harvest it all and a great business can be built up in tupelo honey," says the Grower.

Alfred H. Pering,  
 Florida.



#### The Third Annual Indiana Round-Up

Tentative dates for the Round-Up at Newport, Indiana, and associated meeting of the Indiana State Field Meet Convention are August 27-28. Members are invited to cast their votes with the secretary to decide whether the annual convention will be held in August in connection with the Round-Up, or in November or October as it has been held in previous years at Indianapolis. Please get your votes on this decision in. They should be in by the first week of June.

So far, the votes indicate that the members favor the Convention and Round-Up together for this year. The tentative speakers are Mrs. Jensen, Editor E. R. Root, Prof. Kelty of Michigan, and Chas. Kruse of Illinois. An effort will also be made to have Inspector Duax, Profs. Milum, Paddock and Dunham, and other out-of-state notables.

James E. Starkey, Secretary,  
Indianapolis, Indiana.

— o —

#### Indiana State Fair Apiary Display.

The catalogs and premium lists for the 1937 Indiana State Fair are ready for distribution. Send for your copy. A total of \$549 in premium money is offered in the Apiary Division. You can expect me to bear down hard to make the bee and honey display bigger and better than ever since I have been relieved at my own request of the unpleasant duty of persuading you to show and also judging and awarding the ribbons. The new judge will be Prof. W. A. Price of Lexington, Ky. Begin your plans to show now. James E. Starkey, Secretary, Indianapolis, Indiana.

— o —

#### November for Oregon Annual.

The next annual meeting of the Oregon Association will probably be sometime in November at the Oregon State Agricultural College at Corvallis in connection with a two-day short course. Further details will be available at a later date.

H. A. Scullen,  
Oregon.

— o —

#### Meeting of St. Clair Beekeepers' Association.

The St. Clair Beekeepers' Association are going to have their regular mid-summer meeting Sunday, June 20, at the country home of Mr. James A. Farmer, one mile south of Freeburg, Illinois.

O. G. Rawson, Secretary.

#### Spring Dwindling in Idaho.

Spring dwindling among Idaho bees was heavy, the weather extremely cold and the season three weeks late. Stocks of honey light. Nectar-bearing plants are blooming in Nevada and prospects brighter. The plants are in good condition. Heavy snowfall has assured them of water.

Glen Perrins,  
Idaho.

— o —

#### Standard Containers for Extracted Honey.

Bulletin No. R156-37 of the National Bureau of Standards at Washington, D. C., is devoted to a discussion of containers for extracted honey under simplified practice recommendation R156-37.

These recommendations supersede those of 1934 and in most part are similar to them.

The only difference being that the 24-ounce and 48-ounce jars have been substituted in place of the quart and pint jars, as standards. These are principally the same as pints and quarts but allow everything to be standardized for weight.

Such simplified practice agreed to by practically all packers and shippers of honey as well as all beekeepers' associations and other notables in the beekeeping field, has meant the discontinuance of dozens of jars that are not standard and the concentration on a very few, the list being, in glass containers, capacity of 5, 8, 16, 24, 32 and 48 ounces and in tin containers, capacity of 2½, 5, 10 and 60-pound cans.

— o —

#### Demand for Bees for Pollination.

The demand for bees for pollination of orchard fruit in Washington was greater this year than beekeepers were able to supply, according to R. C. Immele of Toppenish of the Yakima County Association. Spring was late and cold, and through part of the blooming period the bees were only able to work a few hours each day. The bloom was gradual, however, and so improved the chance for pollination.

I. L. Neill,  
Washington.

— o —

#### Let the Institute Help You With Your Field Meeting.

Secretaries should take note of this. The American Honey Institute is prepared to help in the arrangement of programs and securing of publicity. They offer program sug-

gestions including a demonstrator's outline; work for the Woman's Auxiliary; an outline of Institute Service Programs; publicity releases; cookery contest programs, procedure, and score cards; honey literature samples; picnic menus with recipes. Why not take advantage of this service? Write American Honey Institute, Madison, Wisconsin.

— o —

#### Berkshire County Activities.

The Berkshire County (Massachusetts) Beekeepers Association in its second year is keeping up its high standard, giving its members first-class speakers and educational entertainment. We started 1937 with an election of officers, keeping the staff from last year. Members unanimously voted to hold our dues down to 50 cents a year, and to maintain our plan of monthly meetings. Our membership has increased, boosting our treasury and putting more life and pep into meetings. We have a drawing each month of two queens to the total of twelve, which our state inspector has promised to furnish, along with two packages of bees. These are obtained from two large breeders in Alabama in return for distributing advertising leaflets. We found it necessary to table a bill introduced into the state legislature for registration of bees and equipment because we believed that the large fee for registration would do more harm than good to our small members. We are sure that registration will come eventually, but we believe that we should have adequate inspection before paying out money for registration, especially the proposed amount of the fee. In the near future we hope to have a staff for inspection of members' bees and a fund to assist members who are forced to destroy.

At our February meeting our guest speakers were Mr. Davis and Mr. Shaw of the State College. Their talk was about the value of pollination and was illustrated by colored slides. At the March meeting we had Charles Mraz, of Middlebury, Vermont, who spoke on resistance to foulbrood and on the carbolic acid screen. At a special meeting our speaker was Frank C. Pellett, of the American Bee Journal staff, who gave a talk on a number of interesting topics.

In April we had a film on the handling of bees shown by the extension service. Our May meeting is to consist of slides obtained from the Lewis Company. We have other good speakers and entertainment in mind for the rest of the year but can always use more if anyone is so inclined. We have plans for another picnic and outing in August, with a display at the local fair. There is talk of a scholarship fund for residents of the county interested in beekeeping.

The association has obtained a seal for members to use on Berkshire produced honey and letterheads.

When you pay for  
**GOOD BEES  
AND QUEENS**

Be sure you get them—order Forehand's. How many times have you been disappointed in stock and service? And just think for the same price you could have had Forehand's!

Early blooming plants enable us to rear queens from natural sources.

2-lb. pkg. bees with unit. queen, \$1.95
3-lb. pkg. bees with unit. queen, 2.55
Untested queens ..... 75

**N. FOREHAND :: DE LAND, FLORIDA**

### Strain 47 Lower Austrians

Are large grey bees "unbelievably" gentle with more all around good qualities than any of the other grey bees. Queens 75c each, any number.

**M. P. ILGENFRITZ, Jr., Castleton, Md.**

### CAUCASIAN QUEENS

You will never experience real joy in handling bees unless they are gentle. We offer you gentle bees from stock that we have been selecting and breeding since 1924. We solicit your orders and correspondence. For June untested queens 50c ea., tested \$1.50 ea., select tested \$2.00 ea., breeders \$5.00 and \$7.00 ea.

**BOLLING BEE CO.  
BOLLING - - - ALABAMA**

We would like to send you a

### QUEEN

**R. V. STEARNS  
MASON, TEXAS**

### PACKAGE BEES AND QUEENS

We can now make prompt shipments of package bees and queens. Place your order and see how quick the bees come. Order from this ad.

3-Pound Package and Queen by express f.o.b. ....	\$2.55 each
2-Pound Package and Queen by express f.o.b. ....	\$1.95 each
Queens	50c each

Discount to dealers

**TAYLOR APIARIES  
LUVERNE, ALA.**

### MAYEUX BEE FARM

### ITALIAN BEES & QUEENS

Package Bees with Queen:

2 lbs. bees with queen ...	\$1.95 each
3 lbs. bees with queen ...	\$2.55 each
3 lbs. bees, two comb brood with queen ...	\$3.00 each

15% discount to dealers.

**MAYEUX BEE FARM  
Alix L. Mayeux, Prop. Hamburg, La.**

We are raising our funds from card parties, etc., with a good clearance on selling donation chances on different articles. Our honey sales have improved and we are advocating new types of advertising. Our intentions when we organized were to help the local beekeeper and we feel we have taken a decided step for the better.

William V. Kirby,  
Secretary.

— o —

### Indiana President Starts Vocational Classes.

President Stewart of the Indiana Association, Newport, Indiana, has started vocational classes in beekeeping in cooperation with the local high school. He is having a college student help him with the double purpose of aiding in his apiaries and also helping in the instruction of the boys and girls.

This is a good idea. If more of us know about bees, the more there will be who will use honey intelligently and we do not have to fear making new beekeepers to replace the old ones. We die off fast enough anyway.

— o —

### Manitoba Convention Featured.

Both "The Prairie Grocer and Provisioner" and "The Winnipeg and Western Grocer," published at Winnipeg, featured the Manitoba convention.

In "The Prairie Grocer" for January, almost three pages were given to the convention report. That's pretty good. It is a pre-convention report, too, giving the full program. The American Can Company had a full page ad right in that section.

The article on "Problems in Marketing Manitoba's Large Honey Crop" has good suggestions. Under leadership of F. Archibald, grocery broker and large handler of honey, before the Agricultural Committee of the Winnipeg Board of Trade, the Board has taken steps to appoint a committee to pursue the advertising of Manitoba's honey crop through newspapers and magazines, by the radio, and other means.

In "Winnipeg and Western Grocer" two pages are devoted to the convention. This is a post convention report. Much thought was given to standardization of the product for the British markets and a resolution was passed for the formation of a Western Honey Federation to follow the efforts of the Ontario Federation and American Honey Institute.

The Manitoba crop is given as nearly 8,000,000 pounds according to L. T. Floyd's figure. Manitoba, at the Royal Fair in Toronto, May 15, secured seven prizes, the best ever, proving that a big crop of honey in the hands of experienced exhibitors can bring home the prize winnings. Here is the list:

### Light Extracted Honey in Glass.

W. D. Wright, Souris, 2nd; Allan Harrison, Winnipeg, 3rd.

### Granulated in Glass.

Carl Knopf, Gretna, 1st; Allan Harrison, Winnipeg, 2nd; Miss D. Cochrane, Hamiota, 3rd.

### Beeswax.

J. Mackison, Hayfield, 1st; Miss D. Cochrane, Hamiota, 2nd.

ABJ



By G. H. Cale

### That Top Entrance.

In my report in "All Around the Bee Yard," I mentioned it to be my belief that Mr. Brown of Illinois was the first to try this device. A. H. Gates of Garfield, Washington, reminded me that I do not go back far enough. Mr. Langstroth used a kind of top entrance. (This is true, and I believe we published a statement about this some time ago with a picture of the Langstroth top entrance.)

Quoting from Mr. Gates' letter: "This is the fourth winter I have used the top entrance. The winter has been a hard one, the bees haven't had a flight since the 8th of December. I

don't intend to give them any attention until time to change the entrances in March. So far the bees are doing nicely."

Now about our own extensive tests with the top entrance. The winter left us little to go on. In some yards the top entrance seemed to be much better than the lower entrance; and in other yards, there was very little difference, if any. Apparently bees flew on warm winter days more freely from the top entrance than from a lower entrance. Possibly, if the entrance had been better devised, we might have been better pleased with it. We are not giving up. Will try again.

Morley Pettit in "Suggestions on Making Increase" in the March Canadian Bee Journal gives some fine advice. We quote as follows:

"To make increase we collect brood from hives that can spare it, and make up brood chambers, with, say, two combs of honey and some pollen if possible, four to six combs of brood as nearly all sealed as possible, and the balance empty combs. These are placed over excluders on strong colonies and left about a week until all brood is sealed and most of it just ready to hatch. The arrival of queens from South is arranged accordingly.

"When the week is up this brood that is ready to hatch will be covered with young bees that have not flown and will stay where put and will easily accept a queen. An ideal nucleus of a rapidly developing new colony. Each "increase" is set off on its own bottom-board with a new queen in her mailing cage having the candy punctured for a quick release. The entrance is contracted and the small opening closed with green grass that will soon wither or with wet sand that will dry, gradually providing an outlet for the imprisoned bees. In nearly every case the next weekly visit finds the queen laying nicely and the young colony going right ahead, soon to be ready for supering."

It is a plan worth trying. We also make up brood selected from any colony that can spare it with adhering bees (no queens, of course), and move the division so made with three, four or five frames to new locations where they cannot find their way back to the hive from which the brood and bees were gathered. These divisions in the new place are given queens which are already on hand at the time, and they go forward merrily. These divisions are sometimes as good as over-wintered colonies if they are made in the latter part of April or first of May.

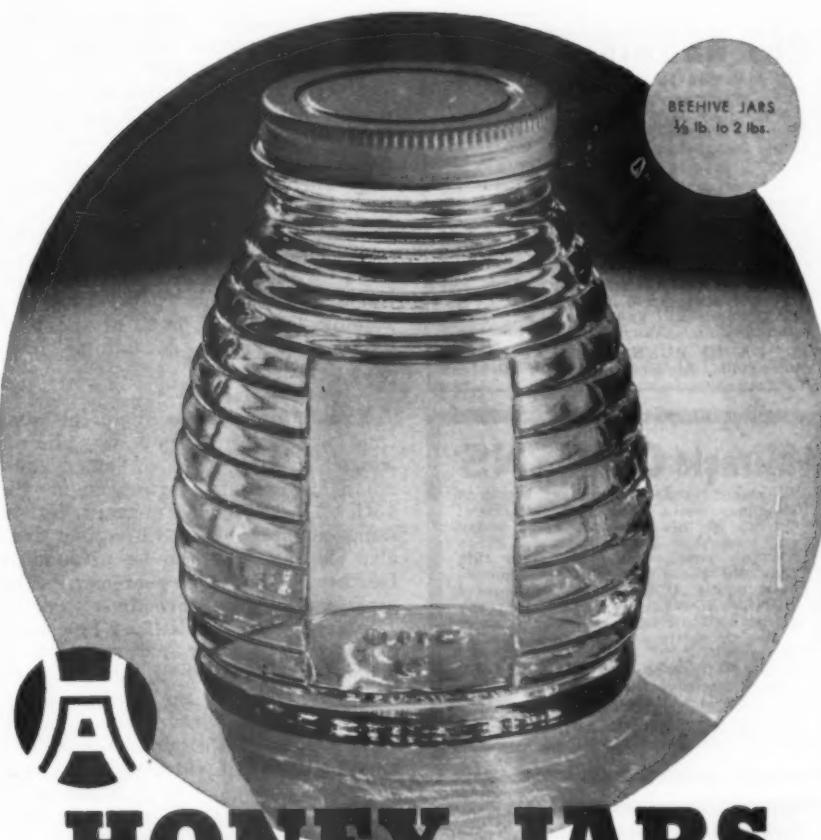
— o —

Frank Beach, of Burley, Idaho, wrote in February "We have had a real winter. Many days below zero, one night 30 below, and plenty of snow. We have dug the bees out from under the snow and they seem to have wintered well, as far as we can determine without disturbing them. We have stopped packing bees. They winter as well or better without packing."

I use to preach against packing. Now I am beginning to wonder if I am not mistaken. A few winters like the past two in our country would say definitely that bees should have both a reasonable amount of packing and an exceptionally good natural protection. I think of the two, the natural protection is the more important, and yet, without the packing, they do not seem to do as well as they do with it.

— o —

This year on going over bees in



## HONEY JARS

Hazel-Atlas presents four complete lines of Honey Jars, all designed specially for honey packers... Crystal clear glass displays the natural beauty of your product... Jars are easily packed and labeled... Available in a complete range of sizes... Write for free samples.

**HAZEL-ATLAS GLASS CO.**  
WHEELING, W. VA.



## QUEENS 50 Cents Each

ITALIANS OR CAUCASIANS

No order too large. We ship 150 queens a day during the rush season.  
Three that are directly interested on the job all the time.

Discount to dealers.

Package Bees at Regular Prices.

**WEAVER APIARIES, Navasota, Texas**

## GET RUNNING'S BEES

And Get Honey—They Satisfy.

### PACKAGES AND QUEENS

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.

### ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey-getting and gentleness. Apiaries accredited and certified by Alabama Department of Agriculture. Get our free circular. YOU can now get RUNNING'S Bees and Queens as cheap as others.

All bees and queens shipped from our Alabama Apiaries. 2-lb. pkg. and queen, \$1.95; 3-lb. pkg. and queen, \$2.55. Untested Italian queens, 50c. No discounts.

DAVID RUNNING APIARIES  
Sumterville, Alabama or Fillion, Michigan

## Miracle QUEENS

Eighteen standard combs of brood in February for a three-year-old queen! On top of this produced more honey and bees than anything in our yards for two years. Our breeder for this year did these things. This remarkable power is yours if you order HONEY BOWL queens, and the truth of this astounding record will be seen. Health certificate and 100% satisfaction.

Air Mail service 7 days per week. Only 50c each for any number. 15% off to dealers. Clipped free.

HONEY BOWL APIARIES  
Reserve, Louisiana

Australian Beekeeping News  
The Leading Bee Journal of the  
Southern Hemisphere is the

### "Australasian Beekeeper"

Subscription 5 shillings per year, start any time. Enquire for International money order for 5 shillings (Australian) at your Post Office. Write now to The Editor, P. O. Box 20, West Maitland, New South Wales, Australia.

## ITALIAN QUEENS

50c Each

THOS. C. BURLESON, Colusa, Calif.

### Mott's Northern Bred Italians

Will eliminate that swarm nuisance. See list. Guaranteed pure or free queen. June, July, \$1.00; 2 or more, 75c each. \$65.00 per 100. Good breeders, \$5.00 to \$10.00. Virgins, 40c each. Satisfaction guaranteed. E. E. MOTT :: GLENWOOD, MICHIGAN

### Package Bees and Queens

By Pound, Ton or Car.

Service - Satisfaction

Trade Agreement Prices. Write for particulars.

VICTOR APIARIES :: UVALDE, TEXAS

### Package Bees & Queens

Italian bees and queens from honey producing stock. We guarantee to give satisfaction. Trade Agreement Prices.

F. L. SPAULDING & SON  
Route 2 St. Petersburg, Florida

early March, we found sealed queen cells and counting back, these cells must have been started in late February. There were no drones available when the virgins emerged. Later, they must have become either queenless colonies or drone laying colonies. Each spring there are a certain number of colonies which from an early attempt to supersede, result in duds which must be picked up, replaced, filled with packages or divisions. Normal losses from such causes may amount to 5% or 10% of the total number of hives containing bees, each year.

— o —

Examining colonies about the same time or earlier, brood was found, which, by the fact of emergence, must have been started about the 15th to the 20th of February. Examining colonies during Christmas week also showed brood to be present on December 27th. This year many colonies were only broodless during January and about half of February. Not over six or seven weeks without brood. According to those who have been investigating the effects of pollen reserves on winter brood rearing and spring build up a sufficient amount of pollen through the winter period induces colonies to begin brood rearing earlier than otherwise and may in many cases replace the winter colonies with young bees in early spring.

We used to think that the rearing of brood in winter meant the extinction of the colony and that it was due entirely to the increase of cluster temperature to control heat during extreme cold periods. Apparently, this is not true, as Corkins of Wyoming has shown, experimentally. The cluster maintains a temperature more or less level and does not increase the amount of heat in the cluster in any marked degree during the winter period, the expansion and contraction of the cluster serving to retain or release heat as required for comfort. So now, it is quite likely that winter brood rearing is a decided benefit.

— o —

Fred Schappi of Colorado calls me to account for my mention in "All Around the Bee Yard" of his 600 pound crop of honey from his keeping two queens in one colony. He writes: "I have records of bees that I can show. I do not get that much every year, but in good years I do get 600 pounds of honey. My records show that I average about 200 to the colony including the entire apiary. One year trying two queens per colony, I only got about 100 pound average. This was a dry year."

"I try to improve my pasture by furnishing yellow and white sweet clover seed to my farmer friends. This helps to enrich their ground and at the same time helps my honey crop. I do not lose anything by this practice except the cost of the seed."

I think Mr. Schappi is a little mistaken in what I said. I quote from "All Around the Bee Yard" about more than one queen in a hive, as follows: "And why shouldn't we try it? When Fred Schappi of Colorado writes in February 'Item' that he uses two queens freely in his hives without excluders and gets twelve to fourteen supers of honey! That would cause anyone to want to try it, wouldn't it? Put your supers on about the time of apple blossom, and put four combs of brood over the top super with a flight space and let the extra queen mate there. He claims to have averaged 600 pounds to a colony with this system. That gives us a black eye; 250 in the best year is the best we have been able to do so far."

If you are interested in using two queens, try this plan. Certainly, if two queens in one hive will produce considerably more than the total crop of the two queens in two separate hives, there must be something to the Duo queen system, but that point must be proved to my satisfaction to make my interest in it a permanent one. I am not questioning Mr. Schappi. His figures arouse my interest.

ABJ

## Floyd Must Have Had a Hand in This

We quote from the Winnipeg Free Press of May 7, 1937. Evidently L. T. Floyd, Provincial Apiarist of Manitoba must have been too busy to get out that package of bees which caused so much interference with the ladies smoking. We quote below from the Free Press.

"More than cigarette smoke is needed to subdue a swarm of 30,000 angry bees a woman learned to her dismay at the legislative buildings, Wednesday.

"Going to a store room in the basement of the building for a quiet puff all by herself the stenographer snapped on the electric light, lit her cigarette, sat down on a wooden case, and relaxed.

"All had been quiet, but suddenly she became aware of a loud humming beneath her. Increasing in intensity the vibrations of the sound went right through her. With an alarmed cry she sprang to attention.

"At one end of the box on which she had been sitting she saw a fine mesh wire screen with thousands of bees on the other side desperately trying to escape. Visions of bee keepers quelling angry bee swarms with smoke came to her mind. She took a deep draw on her cigarette and blew smoke through the screen.

"Result: Bees immediately made a noise like a high powered dynamo. Lady screamed, fled.

"Explanation: The bees were placed there temporarily by the de-

partment of agriculture prior to being shipped to the country.

"Finale: The lady is looking for a safer place to have a smoke on her odd moments off duty."

Many thousands of packages have been going into Manitoba during April and May and undoubtedly L. T. Floyd who has the inspection of all packages coming through the Customs has been sorely put to keep his desk and package bees cleared.

ABJ

## Two Queens in a Colony

I have read at different times of a colony having two laying queens, but I had not thought much about it until last summer, when I was requeening with ripe queen cells. In the upper story of a hive I found a laying black queen and destroyed her. No cells were started and I was sure the colony was ready for the ripe cell. I placed it in a cell protector and hung it between two frames of brood and closed the hive, waiting for the queen to emerge in proper time.

To make sure that no other queen could get into the hive, I left the drone trap on the hive until she should be out and about.

The day after the queen was due to emerge I found a fine yellow queen, in the drone trap, dead. Inside I found queen cells with eggs in them, a lot of drone eggs in the corners of drone comb, and a few fresh eggs in worker comb, but they were scattered here and there. It was evident that, before I destroyed the laying queen, mother and daughter had been laying in the same hive with no separation between them. To their misfortune I had found the young, prolific queen instead of the old one, which had been in the hive three or four years. This left the colony as it had been before it raised the young queen, so they began at once to prepare for another, instead of caring for the one in the cell which I gave to them. [We have had similar instances quite often.—Editor.]

George H. Williams,  
North Carolina.

ABJ

## Dusek Company Continues Propaganda for Honey for Relief

In the most recent circular letter from the Joseph Dusek Company, of Chicago under date of April 16, they continue to advise beekeepers to see if, through their representative in Washington, honey may not be purchased by the government for relief purposes.

This is a good move. We hope beekeepers take the suggestion.

## Things Worth Considering . . .



We are prepared to give you 24-hour service on all queen orders, large or small, if you demand it, and you will make no mistake in ordering from us, as you will receive the best grade of three-band Italians that years of experience can produce.

We will have no more package bees this season. Sold out.

### PRICES FOR REMAINDER OF SEASON ON QUEENS—

50 CENTS EACH. 15% discount to dealers.

**SHAW & HOMAN, Shannon, Mississippi**

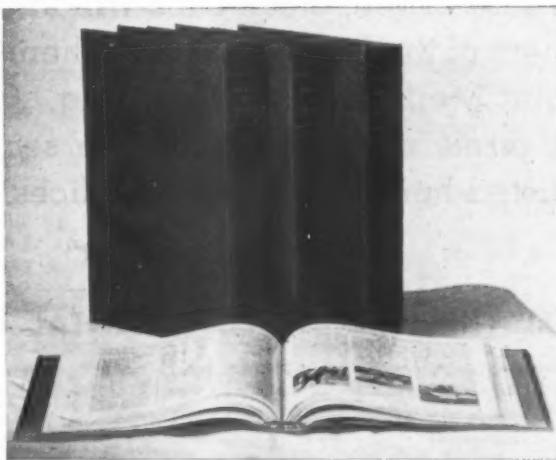
## The Louisiana Comb Shippers and Honey Producers Association

Thanks its customers for the heavy package business just shipped out and takes this opportunity to inform all that Italian queens of same quality as these packages, are ready for shipment to customers at the following price.

50c each.

R. L. Bernell, R. 4, New Orleans.  
E. J. Bordelon, 2651 Havana St.,  
New Orleans.  
J. P. Corona, Kenner.  
Jes Dalton, Kenner.

Ephardt's Honey Farms, Luling.  
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cloth, stamped in gold—a handsome addition to any library. With simple hooked wires you are enabled to snap twelve copies of American Bee Journal in the binder one at a time as they come to you.

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CINCINNATI

# Crop and Market Report

COMPILED BY M.G. DADANT



For our June crop and market page, we asked reporters to answer the following questions:

1. How is the crop so far?
2. Condition of bees?
3. Honey plant prospects?
4. Moisture conditions?
5. Do general prospects look better than 1936?

#### Crop So Far.

Naturally, very little crop has been harvested except in the southern sections and in California. Reports would indicate that along the Atlantic coast the crop is, so far, better than ordinary but in Georgia and Florida we find an exception in that there has been too much rain and the cool weather also hindered the early flow so that the crop will probably be short.

Across the southern states, about normal conditions prevail except that lately in Louisiana sections, the crop has come in with a rush and will exceed that of last year by far. In Texas about normal conditions or perhaps a little under prevail. In Arizona, early crop also has been hindered by the cold but further indications are satisfactory.

In California, the honeyflow was delayed two or three weeks by the cool weather and naturally the bees were not in satisfactory condition to harvest the orange flow.

#### Condition of Bees.

We find conditions of bees above ordinary in the New England states and down into New York and through the entire Atlantic coastal region. Although the bees started out late, conditions have been so satisfactory owing to the moisture in these sections, that bees have come forward very rapidly. Condition of bees is also satisfactory throughout the entire South. In the middle western states the loss of bees was small and the slowness of the season has been made up by rather abnormal yielding conditions of the minor plants so that bees have come forward extremely rapidly.

In the plains area, about the same conditions prevail except there has not been so much moisture. In the intermountain territory losses were in most instances extremely heavy and the backward conditions have not been conducive to getting bees in the best shape by the time this is written. Many packages have been ordered but undoubtedly the number of bees throughout the entire section extending into Utah and Nevada and up into Idaho and Montana will not be as many as a year ago owing to the slowness of the season and the heavy winter losses.

The Washington and Oregon conditions are normal. In California, as we have already mentioned, the bees were extremely slow in coming out and were probably not in condition to take best advantage of the orange flow. Also the season was so late that many had moved into the sage which showed extremely promising results. Bees, however, have built up rapidly lately.

#### Honey Plants.

In the New England States again, we find honey plants in 100 per cent condition or better and this extends throughout the Atlantic coast region except that Florida does show a little under normal. Normal conditions prevail in the entire South and about normal or a little less in Texas on account of many complaints of the weather being too dry.

As we go westward across the central western states, we find many reports to the effect that there is no white clover and very little sweet clover and the question is how the crop will turn out. Several beekeepers already

are looking forward to 1938 stating that the young clover is coming up in masses everywhere owing to the moisture.

Some sections of Ohio, northern Indiana, northern Illinois and perhaps northern Minnesota show normal conditions. However, throughout the rest of the Central West, we believe sub-normal conditions prevail. The same is true particularly in the plains states on account of the drought last season not having left the large quantity of sweet clover plants.

In the intermountain territory plant conditions are normal with plenty of moisture and along the Pacific coast extending down into California, honey plants do look extremely well.

#### Moisture.

Moisture conditions have been very satisfactory throughout the whole east half and most of the southern part of the country. In fact we find complaints of too much moisture rather than too little and this particularly in the southern states.

Texas shows somewhat dry conditions and Pennsylvania perhaps a little short of moisture.

In the Central West, about the same conditions prevail except that the moisture is more scattered, there still being some dry areas. However, on the whole, moisture is far better than it was a year ago at this time when our drought had already started.

It is, however, from the Missouri River westward that we find many complaints of the drought throughout the plains area and particularly so in Kansas and Nebraska, and extending up into the Black Hills and eastern Montana. This also applies to central and western Texas.

In the intermountain territory more snows have fallen than last year and reports are that there will be ample moisture for all irrigation projects so that if there are bees to gather nectar and flora to yield it, there should be plenty of honey. Along the Pacific coast conditions from northern California north are satisfactory as to moisture. Abundant moisture in California earlier has given way to drought since May 1 with a question in the minds of the beekeepers as to whether the drought will continue and cut down the flow from sage and other regular sources.

In Canada, about the same conditions prevail as in the different sections of the United States. Ample moisture in British Columbia gradually diminishes in Saskatchewan and Manitoba, and there is adequate rainfall in Ontario and Quebec.

#### General Prospects.

All in all, general prospects do not apparently measure up to what they were at this time last year when the whole white clover region looked like it was in for a big white clover crop. Almost normal conditions may prevail perhaps in all of New England, New York, Pennsylvania and down the Atlantic coast as far as Georgia.

Throughout the central sections, however, extending from Pennsylvania westward, it is a question whether there is sufficient of the old clover left to yield the same amount of a crop as there was last year.

However, we look for about normal conditions throughout Michigan, Wisconsin and Minnesota, particularly in the northern part. As we work into North and South Dakota, however, and Nebraska and Kansas, it is very doubtful whether conditions there can reach anything like normal.

We will have to wait and see just what the result is. More in the July issue.

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Write for Our Special Club Offers  
**AMERICAN BEE JOURNAL**

**Iverson Honey Company (Not Inc.)**  
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Edwin H. Guertin, 201 N. Wells St., Chicago  
Extracted Honey bought and sold  
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**Are You Ready for This Season?**  
Have you gone over your equipment? Have you plenty supplies? Advertisers in the American Bee Journal will welcome any inquiry sent to them.

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Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

## BEES AND QUEENS

**"SHE-SUITS-ME" QUEENS.** None better. Only choice selected queens sent out. Line-bred, three-banded stock. Prices after May 20, one queen \$1; six for \$5. Special prices on large quantities. Send for circular.

Allen Latham, Norwichtown, Connecticut.

**THREE - BANDED ITALIAN BEES AND QUEENS** of fine quality. A trial order will convince you. Satisfaction guaranteed. Marketing Agreement prices. Alamance Bee Company, Geo. Elmo Curtis, Mgr., Graham, N. C.

**LIGHT 3-BANDED ITALIAN QUEENS.** We are one of the largest growers of queens in the United States, producing 100 queens or more daily. We ship only young, laying queens and guarantee them to be purely mated and satisfactory to you. You are the judge. Price, 50c each.

The Walter T. Kelley Co., Paducah, Ky.

**QUALITY QUEENS.** 3-banded Italians, prolific, gentle, great honey gatherers. Safe arrival. No disease known in our apiaries. Carolina Apiaries, Dalice E. Crawford, Mgr., Haw River, North Carolina.

**EXTRA YELLOW** Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested 50c each; tested \$1.00 each. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C., Route 2.

**JOYFUL QUEENS**—Leather colored Italians. Good honey gatherers and gentle. 50c each. Joy Apiaries, Walter Friedrich, Belleville, Illinois.

**GOLDEN QUEENS** producing bees solid yellow to tip, untested 50c; tested \$1.00. Health and satisfaction guaranteed.

H. G. Karns, Green Bay, Va.

**GOLDEN ITALIAN QUEENS.** Untested 50c. Select untested 75c. Tested \$1.00. Select tested \$1.50. Satisfaction guaranteed.

Sam Hinshaw & Son, Randleman, N. C.

**ITALIAN QUEENS**, reared by Double-Graft method. June packages.

Alonzo McKay, Rt. 1, Vicksburg, Mississippi.

**"WE WANT DEALERS"**—Quality queens at regular Trade Agreement Prices. Saving on advertising passes to customers in quality. Choice queens 50c, any amount. Discount to dealers of 15%. We need more dealers in most states. Head Apiaries, Winnfield, La. "If you use my queens this year you will want my packages next spring."

**I WANT YOUR QUEEN TRADE** the balance of the season. Queens that fill your brood chambers with brood which in turn becomes bees that fill your supers with honey.

O. P. Hendrix, West Point, Miss.

**REAL PETS**—Gentlest bees under the sun. Guaranteed that you can manipulate them without smoke or veil under any weather conditions. Only yellow bees with long tongues. Non-swarmers. Great honey gatherers. \$1.00 each. More than ten, 75c each. June to October.

Brown's Apiary, Cape May Court House, N.J.

**CRUMMEY'S** three-band Italian queens and bees. Marketing Agreement prices. Prompt shipment. Satisfaction.

John A. Crummeys, Jesup, Ga., Box 117.

**CAUCASIAN QUEENS** 50c. Package bees agreement prices.

Miller Caucasians, Three Rivers, Texas.

**CAUCASIAN QUEENS** after June 1, 50c each any number. 2 lb. pkg. \$1.95; 3 lb. pkg. \$2.55. Prompt shipment on all orders. Safe arrival. Satisfaction.

Tillery Brothers, Greenville, Ala., Rt. 4.

**DARK ITALIANS**, the best bees on earth, we think. Young laying queens, full of eggs and pep. Price 50 cents each.

J. F. Diemer Co., Liberty, Mo.

**GOLDEN QUEENS.** Excellent quality that produce hardy, gentle workers. Personally reared. Untested 50c; tested \$1.00. Health certificate. Safe arrival and satisfaction guaranteed.

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### WE TURN OUR ATTENTION from Package Bees to Queens now. Our improved introducing cage will save you time, money and worry. No loss in introduction. If requested, we mail your queens in them. Follow directions. We guarantee she will be accepted or replacement free. Try our queens. You will like them. 50c each.

Silver Run Apiaries, Rt. 1, Phenix City, Ala.

**LONG-TONGUED CAUCASIAN Bees and Queens** Gentle, prolific, hardy. Better honey gatherers. Winter better. Queens 50c each. 15% discount to dealers.

P. B. Skinner Bee Co., Greenville, Ala.

**GOLDEN ITALIAN QUEENS** that produce workers very gentle to handle, good honey gatherers. 30 years a breeder. I don't let a colony build over 12 cells at the time to get good queens. Satisfaction guaranteed. Untested 50c; tested \$1.00; select tested \$1.50.

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## HONEY FOR SALE

**FOR SALE**—Northern white extracted and comb honey.

M. W. Cousineau, Moorhead, Minn.

**CHOICE** Michigan Clover Honey. New 60's. David Running, Fenton, Michigan.

**HONEY FOR SALE**—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

**FOR SALE**—Well ripened clover honey, car lot or local shipments. Will be pleased to submit sample. THE COLORADO HONEY PRODUCERS' ASSN., 1324 Market St., Denver, Colorado.

**HONEY FOR SALE**—All kinds, any quantity. H. & S. Honey and Wax Company, Inc., 265-267 Greenwich Street, New York.

**WHITE CLOVER HONEY** in 60-lb. cans at 8c lb. Write for prices on large quantities. Sample 15c.

F. W. Summerfield, Grand Rapids, Ohio.

**FOR SALE**—Fancy, well ripened, white sweet clover honey in 60-lb. cans. Extra good quality. Dadant & Sons, Hamilton, Ill.

**DELICIOUS PALMETTO HONEY** in new sixties.

Peter W. Sowinski, Fort Pierce, Florida.

**FOR SALE**—A car of honey.

Geo. Seastream, Moorhead, Minn.

**FOR SALE**—Clover extracted honey in sixties, 8c; amber 7c.

H. G. Quirin, Bellevue, Ohio.

## HONEY AND BEESWAX WANTED

**WAX** worked into comb foundation, accepted in trade for supplies or bought. Write for our proposition and shipping tags.

Walter T. Kelley Co., Paducah, Kentucky.

**WANTED**—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Bryant & Cookingham, Inc., Los Angeles, California.

**WANTED**—All dark grades of honey.

C. Jankowski, Russell, Illinois.

**WANTED**—Extracted Honey. Send sample and price delivered to T. W. Burleson & Son, Waxahachie, Texas.

**HONEY PACKERS**—Write us for prices on carload lots of California and Western Honey. We stock all varieties. HAMILTON & COMPANY, 108 West Sixth St., Los Angeles, California.

**WANTED**—White and Amber Extracted Honey, any quantity; also beeswax. Write THE FRED W. MUTH CO., Pearl and Walnut Sts., Cincinnati, Ohio.

**ALL GRADES**, including capping melter honey. Prairie View Apiaries, 2005 Fuller-ton, Detroit, Michigan.

**WANTED**—Clover extracted and comb. Any amount. Quote price first letter.

Central Ohio Apiaries, Millersport, Ohio.

## FOR SALE

**IF YOU ARE INTERESTED** in a 1,400 colony bee outfit located in a fine honey territory, write Jacob Epstein, Idaho Falls, Idaho.

**FOR SALE**—Forty-five frame Simplicity extractor, \$65. Good condition. Crated for shipment. J. W. Green, Hollister, Idaho.

## WANTED

**WANTED**—Good used four-frame extractor, multiple reversing hand extractor. Have three-frame to sell.

F. F. Karek, Williams, Iowa.

**WANTED**—Copies of A-B-J for March, May, June, October, December, 1931. Also full sets of 1931 copies. Do you have any you do not care to keep? Write to American Bee Journal, Hamilton, Illinois.

## SUPPLIES

**BEST QUALITY** bees supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colorado.

**BEST QUALITY** soft white pine Hoffman frames \$30.00 per thousand. Complete line of bee supplies manufactured by us. All prices the lowest. Free catalog.

The Walter Kelley Co., Paducah, Ky.

**DIFFERENT**, that's all. Written and published for the instruction of beekeepers. 52 pages of breezy entertaining beekeeping comment each month. One year, \$1.00; two years, \$1.50. Sample, 3c stamp.

The Beekeepers Item, San Antonio, Texas.

**FOR SALE**—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices.

Hamilton Bee Supply Co., Almont, Mich.

**QUALITY BEE SUPPLIES**. Prompt shipment. Reasonable prices. We take honey and beeswax in trade.

The Hubbard Apiaries, Onsted, Michigan.

**COMB FOUNDATION** at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates.

E. S. Robinson, Mayville, N. Y.

**ATTRACTIVE PRICES** on bee supplies and comb foundation. Send for catalog. Saves you money. THE FRED W. MUTH CO., Pearl and Walnut Sts., Cincinnati, Ohio.

**SAVE QUEENS**. Safin cages now 15c. Ten for \$1.00.

Allen Latham, Norwichtown, Connecticut.

**YOUR WAX** worked into medium brood foundation for 15c pound, thin super 22c. Ten pounds medium brood foundation \$4.10.

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**THE PINARD** nailless queen bee shipping cage. Send for sample. Agents—Diamond Match Co., Chico, Cal.; Weaver Apiaries, Navasota, Texas. A. B. Pinard, Manufacturer, 810 Auzerais, San Jose, California.

OLD-TIME STRAW BEEHIVES. Photos free. G. Korn, Berrien Springs, Mich.

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SOMETHING NEW—Special very fast drying bright red queen marking enamel. Handy, no sticking, non evaporating bottle and cap with brush attached, vest pocket size. Postpaid anywhere 25c. Bode Electric Co., 116 Tennessee Ave., Lakeland, Florida.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamp. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, The Way's End, Foxton, Royston, Herts, England.

PLANS FOR POULTRY HOUSES—All styles; 150 illustrations. Tells you the type to build for your particular locality. Secret of getting winter eggs, and copy of "Inland." Send 25c.

Inland Poultry Journal, Spencer, Indiana.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list.

American Bee Journal, Hamilton, Illinois.

#### Bees Are Not Socialists

Dr. Miller said that "bees do not do anything invariably"—meaning that there is wide variation in the habits and impulses and urges of these little creatures, whose whole existence is governed by "instinct" and remembering the past.

Bees do not think (as we humans know it). If they have a soul, it is a collective entity, where "altruism" considers only the good of the hive, and all outside the communal doorway is enemy-alien.

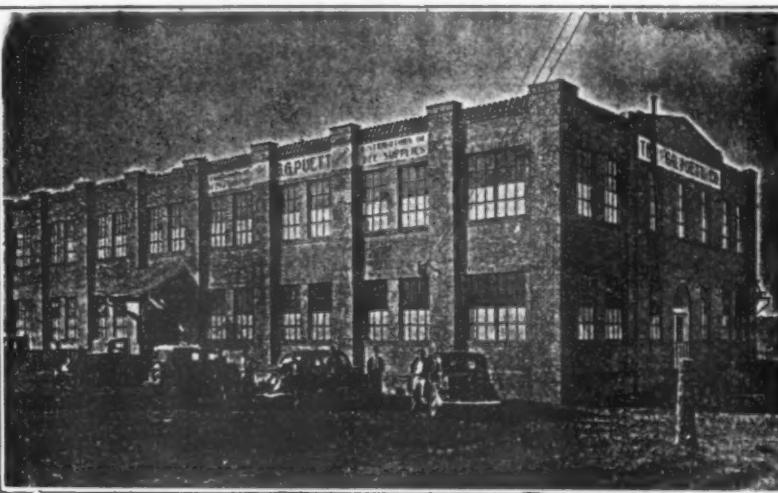
The bees are egotists, who think that the beautiful world of flowers was made just for the good of one particular hive of bees, and they take life so seriously, and go at the business of getting nectar like their heads were afire. Every man for himself, and the devil take the hindmost.

Bees are "Facists" rather than Communists. They consider the good of the state, and the individual is not worth considering. Any good honest bee will not hesitate a moment to sacrifice his life and sting you, if you come too close to his precious home, and each one works himself to death to produce brood and honey to insure the propagating of the species. The bee's whole life is an urge to work and produce, in a most unthinking way.

The bee is not a Socialist, for thinking idealism is necessary to live on the plane of Karl Marx. A soul, governed by feelings of altruism towards those outside the hive must be developed, and bees lost their chance of evolving a soul, when communism became a fixed law. Men like Dr. Miller learned how to control and use the product of this "fixed law" entity. Is this just a case of "big fish eating the little fish." Is there a Higher Being in control of it all.

Edmond Fontaine,  
Maryland.

## Our New Headquarters



THE above is a picture of our building which we own. We have 2,500 full colonies of bees to ship packages from. We have 3,400 queen mating nuclei which will be in full operation prior to April 1. We have an additional number of colonies of bees to support our queen yards without interfering with our package shaking colonies.

We do not intend to beg you for your business but we would like you to know that we have quality goods and can give you the best of service.

Correspondence invited.

## THE PUETT COMPANY

"Where Satisfaction Is a Certainty."

HAHIRA,

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Write  Book on the . . .  
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Thousands of acres of sweet clover and other honey plants that give honey of high yield and fine quality. Favorable localities—Red River Valley, in Minnesota and North Dakota; Milk River Valley; Lower Yellowstone Valley; Valier Project; Kootenay Valley, in Montana and Idaho; and the Pacific Coast Region in Oregon and Washington. • Beekeepers in this country are increasing their holdings and new beekeepers are establishing themselves along the Great Northern Railway in these states. Diversified farming and livestock are similarly favored by low cost production. • Write for Free Booklet on beekeeping and farming opportunities, including Low Homeseekers' Round Trip Excursion Rates.

E. C. LEEDY DEPT. J., GREAT NORTHERN RAILWAY  
SAINT PAUL, MINNESOTA

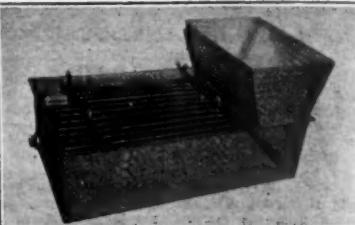
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WINONA, MINNESOTA

**SPECIAL STOCK REDUCING SALE**  
**OF G. B. LEWIS HIGH GRADE BEEWARE**

Money order or certified check must accompany order.  
Prices F.O.B. cars Winona. Subject to Prior Sale.

**ON HAND**

Cat. 2093	85 10-frame shallow extracting supers 5 $\frac{1}{2}$ " grooved top bar frames per 5	\$3.60
Cat. 20108	135 10-frame shallow extracting super shells, no frames per 5	2.15
Cat. 2024	25 10-frame all wood covers, per 5	2.40
Cat. 2873	95 8-frame bodies without frames, per 5	2.85
Cat. 2876	40 8-frame bodies with reg. slotted bottom bar frames, per 5	4.55
Cat. 2827	30 8-frame metal roof covers with inner covers, per 5	3.85
Cat. 2024	30 8-frame all wood covers, per 5	2.30
Cat. 2838	50 8-frame all cypress wood full thickness bottoms, per 5	2.35
Cat. 28135	25 8-frame No. 1 comb honey supers for 4 $\frac{1}{4}$ "x1 $\frac{1}{4}$ " scalloped sections, per 5	3.45
Cat. 2822	20 8-frame Watertown covers, per 5	2.30
Cat. 2022	20 10-frame Watertown covers, per 5	2.40



**At the End of the Day—  
with a BRAND MELTER**

- » A Cake of Clean Wax
- » Good Honey in the Tank
- The New BRAND MELTER  
will do that for you too!**

Solves the problem of melting cappings. Uses waste steam from uncapping knife or plane. No injury to honey; no wax or specks. No honey left in wax.

For full particulars  
write to

**W. T. BRAND**  
MITCHELL, NEBRASKA

**One Pound**  
7 Sheets  
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NON-SAG FOUNDATION

Correct Base Angle  
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**POSTPAID** Anywhere 70c : Foreign Countries 80c : As a Special Introductory Offer

**MAY WE SEND YOU YOUR POUND NOW?**

We have just installed the best Aluminum filter, kettles, etc., for refining beeswax, known. Our mills and machinery have been greatly improved, capacity of mills 600 pounds per hour, sizes and weights are accurate and correct. Don't confuse our foundation with much of the foundation made today. You cannot buy better foundation anywhere regardless of price. We buy beeswax for cash or work your wax into foundation. We are prepared to supply your hives, extractors, bees, etc. We solicit your inquiry. Visit our new all concrete and steel apiary and factory building of more than 16000 ft. of floors.

**The Highland Apiaries & Factory :: W. Elkton, O.**

**IMPERIAL**  
**Italian Queens, Package Bees & Nuclei**

The best queens that nature, intelligently assisted, can produce; heavy packages of young worker bees; service; quality; friendly counsel—these are some of the things we strive for. **Better rush us your order before it is too late.**

Untested Italian Queens	\$ .50
Two-Pound Package with Queen	1.95
Three-Pound Package with Queen	2.55
Two-Pound Nucleus with 1 Frame of Brood and Queen	2.35

Send for circular. Discount to certified dealers.

**THE COFFEY APIARIES**  
WHITSETT, TEXAS

**WANTED** partner in going concern. Bees & Honey. Would like young man or couple. An opportunity to live, work and grow in a new country. Charles Grader, Box 276, Forks, Clallam Co., Washington.



**CAUCASIANS**

Extra gentle, prolific, long tongue, little swarming, dependable workers, 10% to 40% ahead of Italians. Wintered out of doors and bred in a climate like their native land thus insuring their good qualities.

**CARNIOLANS**

Prolific at all times, very gentle, best of winterers, build beautifully white combs, most excellent workers. My Carniolan queens headed colonies producing 435 lbs. extracted over whole yard. Thirty years imported strain.

Prices: Both races: 1 to 5, ea. 60c. Six or more, 50c ea. Tested \$1.00. Breeding queens \$5.00.

ALBERT G. HANN, Glen Gardner, N. J.

A-B-J Classified Ads Bring You Results  
Read A-B-J—Solve Your Apiary Problem



## DOWN GO PRICES!

But our QUALITY is still on TQP. Don't nag the whole family because you're late. Why? Just pick on us. We will help you out of the jam, if it's QUEENS OR PACKAGES you need on a rush order. LARGE OR SMALL ORDERS SHIPPED ANYWHERE AT ANY TIME. We support the American Honey Institute. DO NOT BE LEFT HOLDING THE BAG! ORDER NOW! QUALITY, SERVICE, HONESTY. Prices from June 1 on—

D. B. EELS

YOUNG SELECTED UNTESTED LAYING QUEENS	\$ .50 each Postpaid
2-POUND PACKAGE AND QUEEN	\$1.95 each Express Collect
3-POUND PACKAGE AND QUEEN	\$2.55 each Express Collect

Queens By Air Mail Daily!

**EELS HONEY & BEE CO.** "In the Sunny South" **Houma, Louisiana, U.S.A.**

# QUEENS

# QUEENS

**Three-Banded Leather Colored Italians**

Three years of comparative tests have proved that this strain has superior qualities.

The prolificness of these queens will surprise you. Beautiful combs of solid brood to insure strong colonies in the shortest time.

We are taking this opportunity to thank our many customers for their confidence in us and their fine response in selecting this strain during the past spring.

**Price 50c each**

15% Discount to dealers.

**Garon Bee Company,**

**Donaldsonville, La.**

# The Postscript

GOSSIP ABOUT THE OFFICE  
IN THE MAKING OF THE MAGAZINE



In the April Item, O. B. Server comments on my question as to whether resistance to bee stings is any protection against snake bite by saying, "Ask any man familiar with poisons, Frank, and you will see how widely different these poisons are."

Well brother, I have consulted "Beck's Bee Venom Therapy" and on page 52, I find the statement that the poison of the bee had the same effect as the venom of the viper and also that at the Mayo Foundation in Minnesota the physiological action of bee venom had been found to be similar to the venom of rattlesnake.

ABJ

All the authority that I can find seems to agree that the poison is very similar if not, in fact, the same. I fail to find any who "knew the chemical difference in the poisons which made any such resistance virtually impossible." We are trying only to bring out the facts and will appreciate the source of his information if there is any such difference as he states. In the meantime, we would like to know of any other cases where beekeepers of known immunity to bee stings have been bitten and with what result. Reports so far received indicate that the effects are definitely less severe than with persons not commonly subject to stings.

ABJ

With reference to slogans as suggested by a reader of this page, one comes from Ed. H. Scott, of Fargo, North Dakota, who offers, "Eat Honey for Health." Not a bad slogan, although it has been used to some extent already.

ABJ

A reader of this page sends me a clipping from Ripley's "Believe It or Not," telling of a good natured character of Atlantic, Iowa, who has been arrested 500 times and never paid a fine. Anyway he has helped to advertise my home town.

ABJ

The pollen shortage in many localities has been serious this spring. The presence of some early blooming plants would greatly relieve the situation. One of the best for this purpose with which I am acquainted is the Siberian Squill, (*Scilla siberica*). The bulbs must be planted in the fall, but the plant is very hardy and will thrive in competition with other plants without difficulty. It will even do well in stiff bluegrass sod where the grass is not cut. The squill blooms very early in spring, soon as the frost is out of the ground when the bees are in most urgent need. A few bulbs which I planted about 20 years ago have naturalized themselves quite successfully and have spread over the surrounding area until there are hundreds of them now.

ABJ

In answer to the query as to a source of seed of sainfoin or esparcette, Jacob Mohr, of Wilark, Oregon, calls our attention to the fact that this seed is offered for sale by J. J. Butzer, 818 S.W. First Ave., Portland, Oregon. Mr. Mohr tells of seeing this crop grown on lime soil in southern Germany, where a field in bloom is a sight worth going miles to see.

ABJ

During a recent visit to the East I was much impressed by the many evidences of the good work of that pioneer in beekeeping extension, George H. Rea. As a traveling teacher he has started many a beginner in the right direction. New York may well be proud of the high average attainments of her amateur beekeepers, and to judge by the many friendly comments which one hears, much of this result is due to the efforts of our friend Rea.

In my own state of Iowa there are some prosperous commercial honey producers who received their start through their interest in the demonstration apiaries. Certainly the industry owes much to the efforts of the extension specialists in many places.

From Pennsylvania comes a report of the planting of thousands of redbud by a local garden club and an inquiry as to its value for the bees. The redbud is not a major source of nectar, but apparently is of considerable value for spring stimulation in some localities. It appears to be rather erratic in its behavior, attracting the bees freely at times while at others they pay little attention to it.

ABJ

Since redbud blooms before its leaves appear, it offers its flowers very early in spring when it is of great value to the bees. Members of our firm have been active in a similar planting campaign put on by the local Kiwanis club, which resulted in the planting of many hundreds of redbud trees in Hamilton and vicinity. Beekeepers generally will do well to foster such a movement to secure the general planting of such trees as basswood, tulip-tree, redbud or others which are the source of bee pasture as well as ornamental.

ABJ

Here at the experimental apiary we are watching with very special interest the little field of red clover, the seed of which came from Prof. J. Zofka, of Czechoslovakia. This is said to be a red clover which really has a short corolla tube suited to the needs of the honeybee. For fifty years there has been talk of a red clover with flower tubes which enable the bees to reach the nectar. We are very impatient for it to bloom in order to see whether such a clover has really been found.

ABJ

We have about a tenth of an acre of this red clover, planted on ground prepared with special care and seeded with a garden drill to secure proper distribution. The weather was wet for some time after seeding and we are hopeful of a favorable season which will permit a fair test of the value of this new plant in the corn belt of the mid-west.

ABJ

R. H. Polk, of Hapeville, Georgia, sends some beautiful pictures of the flame vine in bloom in Florida. He comments on a reference in this magazine to the effect that the flame vine was a fine honey plant, but he would like to see the honeybee which could reach the nectar. I agree with him that no honeybee could reach the nectar of this plant unless the corolla tubes were cut at the base as sometimes happens to such deep flowers. The reference which he mentions was probably a mistake, and had in mind the coral vine which the bees seek constantly.

ABJ

The flame vine is one of the most beautiful of the tropical climbers and is related to our northern trumpet vine. It is very tender and grows only in south Florida, extreme southern Texas and other warm areas. The flower tubes are smaller than those of the trumpet vine, but about the same depth so that the nectar can be reached only by long tongued moths or humming birds. Now and then one finds the honeybees at work at the base of some deep flowers where openings have been made by other insects, but not enough flowers are thus opened to give them much honey. The beekeeper can hardly expect to find much honey from such deep flowers as those of the flame vine.

ABJ

Through the kindness of C. W. Wood, of Copemish, Michigan, we are able to try two new plants of the catnip family. *Nepeta Mussinii* is a native of Persia and *Nepeta Nuda* comes from southern Europe. We expect to find that both are very attractive to the bees since their near relative, the catnip, is one of the best among honey plants.

FRANK C. PELLETT,  
Atlantic, Iowa.